

THE SOUTHERN PLANTER,

Devoted to Agriculture, Horticulture, and the Household Arts.

Agriculture is the nursing mother of the Arts.—*Xenophon.*

Tillage and Pasturage are the two breasts of the State.—*Sully.*

FRANK: G. RUFFIN, EDITOR.

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REVIEW

Of "*An Essay on Calcareous Manures* by Ed. Ruffin, fifth edition, amended and enlarged." J. W. Randolph, Richmond, 1853.

BY HON. WILLOUGHBY NEWTON.

[Published by order of the Executive Committee.]

The farmers of Virginia have just reason to thank both the author and publisher for this enlarged and improved edition of a most valuable book. A recent biographical sketch of the author, as graceful as it is just, has presented us with some of the incidents of his early life. From these we learn how few adventurous advantages he had for the performance of the difficult task which he has so well executed. At a very early age, with habits of study unformed, we find him leaving the walls of the college for the camp. After a very brief service as a soldier, having just attained his nineteenth year, he entered upon his paternal estate, which he found greatly impoverished. With an ardent zeal that has never known abatement, he commenced, without knowledge, either theoretical or practical, the hopeless task of enriching it. He studied all the foreign authors on agriculture that came within his reach. He followed with untiring industry the instructions of "Arator," but all to little purpose. His labors, like those of Sisyphus, were never ending, and ever to be performed. He became convinced that some fatal error existed in our modes of culture and efforts at improvement, and he determined, if possible, to find it out. A remarkable talent for observation, and a sagacity almost intuitive, soon enabled him, without other aid, to find the true path, whilst Young and Sinclair and Peters and Taylor and others, almost equally distinguished for learning and agricultural experience, were groping in the dark. In the month of October, 1818, he announced in a communication to the Agricultural Society of Prince George, for the first time, at least in this country, the cause of the general sterility of lands, and the proper remedy. This communication, though unpretending in

its character, and written before the author had any experience as a writer, is the germ of the "Essay." And whilst it states, with singular clearness, the points insisted on, is distinguished by a force of reasoning and a purity and vigor of style which could only have been acquired by a careful study of the great masters of the English language, whose works at that day graced the library of every Virginia gentleman, and had not then been superseded by the cheap literature which now threatens to sweep away all sound learning in its eternal wishy-washy flood.

The author in his preface alludes to this communication, an extract from which is published in the appendix to this edition of the Essay, and vindicates his claim to originality in the four following specifications of discovery which he was the first to announce:

"1. The capacity of impoverished soils for receiving improvement from putrescent manures, being in proportion to their original or natural measure of fertility; and that soils naturally poor (especially in this country) could not be enriched by these manures, durably or profitably, above their natural degree of productiveness.

"2. The almost universal and total absence of carbonate of lime in the soils of the Atlantic slope of Virginia, and (by inference) of most others of the United States—and even in most limestone soils—while, from all existing testimony of preceding writers on agriculture, the very general, if not universal prevalence of carbonate of lime would have been inferred by every reader.

"3. The general presence of some vegetable acid in all our naturally poor soils, and this acid acting as a cause of sterility.

"4. The application of carbonate of lime to soils deficient in that necessary element, serving to neutralize the acid—and, by that and other stated and important operations or effects, serving to fit the before poor and unimprovable soils for speedy and profitable improvement."

It is unquestionable that our author was the first, at least in this country, to make the distinct announcement of these important truths. And his credit is not the less, even as an original discoverer, though it be admitted that the same opinions were contemporaneously expressed by eminent men in other countries, of whose views he was entirely ignorant. Such,

indeed, is the usual progress of scientific discovery. It rarely happens that to any one man is due the entire credit of first conceiving and successfully carrying forward a great improvement. Doubtless, many philosophers at the time of Franklin's great discovery were speculating on the nature of electricity, the practical illustration of which has rendered his name immortal. Yet of no other person is it said, *eripuit fulmen calo sceptrumque tyrannis*.

The claim for original discovery, as set forth in the first two specifications, is distinctly recognised by one of the highest agricultural authorities of Great Britain. J. C. Loudon, the Editor of the "Gardener's Magazine," in the year 1836, used the following language: "Mr. Ruffin has the merit of first pointing out that there can be no such thing as a naturally fertile soil without the presence of calcareous earth; but where this earth is present, the soil, however exhausted it may have been by culture, will, when left to itself, after a time regain its original fertility; that soils which contain no calcareous earth are never found naturally fertile; and that all that art can do to them, exclusive of adding calcareous earth, is to force crops by putrescent manures; but that when these manures are withheld the soil will speedily revert to its original sterility." And so important did he deem this announcement, that at the close of the year he again alludes to it in the following manner: "In agricultural science the only point that we can recollect worthy of notice, that has occurred during the past year, is the advancement of the principle by the American agricultural writer, Mr. Ruffin, that no soil whatever will continue fertile for any length of time that does not contain calcareous matter. This we believe was never distinctly stated as a principle, by Kirwan, Chaptal, Davy or any other European chemist or agriculturist." The application of lime and marl for the improvement of the soil has been very extensive in Europe for many centuries, even going back to the time of the ancient Romans, yet it cannot be denied that its use, even by the most scientific agriculturists, has, until very lately, been entirely empirical. The numerous authorities, collected with great research by our author, prove beyond question that the peculiar qualities of marls were not properly appreciated, and that various earths were used indifferently under the name of marl, without the least reference to the amount of calcareous matter contained in them. In confirmation of the opinions expressed and sustained by the numerous authorities cited, we will quote some expressions of Petzholdt from his lectures published in London as late as 1844; a writer certainly of great clearness and ability, though he is charged by his contemporaries with having propagated some gross errors: "Lime, in its calcined state termed *quicklime*, is undoubtedly most frequently used in agriculture with the view to directly fertilizing the soil. It can, however, answer this purpose

only to a very slight extent, or in a few rare instances, since cultivated plants will find as much lime in the soil as they require for their growth and perfection, owing to the exceedingly profuse diffusion of lime upon the surface of the earth; so that an artificial supply of this substance would appear to be, in this respect, perfectly superfluous."

In regard to marl he says, "So much, however, is deducible from all experience, that the mere application of marl to an exhausted soil is of no use whatever, unless it is carried on the field in such quantities as to constitute a new soil, covering the whole surface to the depth of a foot!" Professor J. F. W. Johnston has given indubitable evidence in his lectures, also, first published in England in 1844, that he thoroughly understood the whole subject, and with the aid of his scientific knowledge has been very successful in its elucidation. Yet no careful and intelligent reader can doubt, from the internal evidence afforded by the two works, that the Essay on Calcareous Manures, furnished the great principles which the Professor has so successfully elaborated in his lectures on lime and marl. He does not give his views as at all new, or original, yet they had been stated before by no British writer. Of the existence and contents of the "Essay" he could not have been ignorant. Four editions had been published in this country. It was republished in the Farmers' Register, and extensively commented upon, and commended by the agricultural press throughout the United States, and, as we have already seen, noticed with the highest approbation by one of the first British agricultural authors, and also republished almost literally in the British Farmer's Magazine. It was also reviewed in a most complimentary manner in Silliman's Journal, a work of high reputation and extensive circulation among men of science throughout the world, and which work we find quoted by the lecturer. To suppose that Professor Johnston was either ignorant of this work or that he did not avail himself of its facts and reasonings in preparing his lectures, would be to impute to him a degree of negligence and indolence, in striking contrast with the industry, research, and accurate knowledge of facts, affecting the interests of agriculture in all parts of the world, displayed in almost every page of his learned and valuable work.

The claim of our author to the discovery of acids in soils, and the first announcement of its injurious effects on agriculture, cannot, we fear, be so easily vindicated. For years after the publication of his views we supposed his claim to originality would never be contested. The fact of the existence of acids in soils was doubted by all, denied by many, and ridiculed as unphilosophical by those who affected to be particularly learned. We find, however, that Thaeß, perhaps the most justly renowned of European scientific agriculturists, had either contemporaneously with him or in advance of our author, made a public announcement

of the same truths. On page 82 of the Essay will be found a note containing the views of Thaër, with Mr. Ruffin's comments. The truth of history constrains us to express it as our opinion that to Thaër is due the credit of having first presented to the public those important truths. The first edition of his great work was published in 1812. We have no evidence that any second edition was published during his life, which closed after near two years of illness, on the 26th of October, 1828. A chronological list of his writings accompanying his treatise on agriculture, published in the Farmer's Library, makes no mention of any publication by him later than 1815, except one on wool and sheep breeding, in 1825. It is certain, therefore, that the facts and reasonings in regard to acids in soils, must have been made public before 1833, the period fixed by our author as that subsequent to which he supposed these views were added in a new edition. We think, moreover, there is internal evidence that they were part of the original work. They are so perfectly incorporated with Thaër's reasoning on *humus* that they could not be struck out without destroying the unity of the whole. As a mere matter of literary curiosity it would be very gratifying to see the first edition of Thaër's great work, if more than one edition was published by him, which would be conclusive of the question.

We have deemed these prefatory remarks due to the author of the book under review, whose labors have marked an era in the history of agriculture, and whose services to Virginia and to mankind cannot, in our estimation, be too highly appreciated. If the limits prescribed to us would permit we would gladly enter upon the examination of the entire work, and point out the many striking views of the author, in which we entirely concur. In this respect we must content ourselves with recommending it most cordially to the agricultural public, and especially to the young farmers of Virginia with the assurance that every intelligent and careful reader will find in it much instruction and abundant food for thought.

Premising that every reader of this review shall also read "the Essay" with proper attention, we think that our task will be much more satisfactorily performed, and the cause of true knowledge better promoted by noticing in a spirit of just discrimination the few points on which we differ in opinion with the author, rather than the very many on which we entirely agree with him. We propose, therefore, briefly but freely to discuss some important questions, as well of theory as of practice, considered in the Essay; and in the course of our observations we shall suggest for the adoption of the cultivators of *poor lands* a mode by which, taking the instructions of our author as the basis of their operations, they may improve their farms much more speedily, profitably and cheaply than by the use of calcareous manures, as usually applied. We enter upon this discussion with great diffidence

of our capacity for the undertaking. A learned professor has truly said "that the art of culture is almost entirely a chemical art, since nearly all its processes are to be explained only on chemical principles." How is the practical farmer, who has not entered a chemical laboratory for thirty years, to be sufficient for such a task? He must derive his instructions entirely from books and his own unaided observations in the field. Upon many important points of theory and practice some of the most enlightened authors are at issue. And unfortunately, whilst among them there are many true disciples who worship at the altar of science with proper docility and humility, always ready to confess the limits of human knowledge, there are others, on the contrary, mere empty pretenders, who either delude themselves with a vain show of knowledge, or seek to impose upon the understanding of the ignorant by unmeaning verbiage.

As an illustration of our remark we may mention that to aid us in our present investigations, we took up a late edition of Turner's Chemistry, said in the preface, to combine the learning of Turner, Liebig, Gregory and of two American professors. We turned to the process of fermentation for instruction, as to the chemical agencies at work in that operation of Nature, deemed so important by the practical farmer, and to our great edification we were informed: "Now, we can offer no other explanation of these facts of fermentation than this, that when a body in a state of progressive change, the particles of which are consequently in a state of motion, is placed in contact with another body, the particles of which are in a state of unstable equilibrium, the amount of motion mechanically communicated to the particles of the latter from those of the former, is sufficient to overturn the existing equilibrium, and by the formation of a new compound establish a new equilibrium, more stable under the given circumstances." We are gravely told "There is nothing *unphilosophical* in this explanation, and it is to be considered as the best theory of fermentation yet attempted." [Turner's Chemistry, Rogers, pp. 537-8.]

If this be philosophy, we beg to be informed what is nonsense. Our reading furnishes no better parallel for this profound disquisition than the very learned discourse of the renowned Mr. Jenkinson, in the "Vicar of Wakefield," to which we beg leave to refer the reader, for edification and amusement.

It would be well for the advancement of true learning, if professors, whose duty it is to teach the rising generation useful and practical knowledge, would imitate the clear and vigorous style of our author, whose reasonings though often profound, are always intelligible.

Whilst it cannot be denied that in the department of agricultural chemistry much has already been accomplished, yet to the earnest inquirer after truth, it is obvious that much

more is yet to be done before its claims to the character of an exact science can be successfully asserted.

In its present condition, of doubt and uncertainty, the student of Nature, athirst for knowledge, enters with ardor on the pursuit, and traverses an arid waste, with only here and there a green spot to cheer him on his way, hoping, ere long, to refresh himself at the pure fountain of truth; but finds, at last, that he must be content with the muddy waters of a broken cistern. He cannot reconcile the conflicting opinions of the learned, nor comprehend their discordant facts. To him all is confusion, and he vainly attempts to educe order out of chaos, until weary with the effort, he exclaims, when will another Bacon arise, who with cautious step and comprehensive grasp, shall collect, arrange and classify our existing knowledge, distinguish clearly the bounds of the *known* and the *unknown*, and open anew the pathway of true investigation! Professor Johnson in his lectures, which we take pleasure in commending as replete with good sense and sound learning, has the following just remarks: "The history of science shows, by many examples, that those men who adopt extreme views—who attempt to explain all phenomena of a given kind, by reference to a single specific cause—have ever been of very great use in the advancement of *certain* knowledge. Their arguments, whether well or ill founded, lead to discussion, to further investigation, to the discovery of exceptional cases, and finally to the general adoption of modified views which recognise the action of each special cause in certain special cases, but all in subordination to some more general principle.

"Thus, if some ascribe the fertility of the soil to the presence of the alkalies in great abundance, others to that of the phosphates, others to that of lime, others to that of alumina, and others, finally, to that of vegetable matter in a soluble state, all these extreme opinions are reconciled, and their partial truths recognised, in one general principle, that a *soil to be fertile must contain all the substances which the plant we desire to grow can only obtain from the soil, and in such abundance as readily to supply all its wants; while at the same time it must contain nothing hurtful to vegetable life.*" (Page 288.)

In speaking of his early labors and of his earnest endeavors to impress his views upon others, our author very happily describes himself as "an enthusiastic and successful projector." Of his eminent success, the result of his labors in enriching himself and adding vastly to the resources of the Commonwealth, is conclusive evidence, whilst the ardor with which he is known to devote himself to any object which he deems useful or praiseworthy, gives assurance that he has a full stock of that *enthusiasm*, without which nothing great was ever accomplished, and which indeed is the "open sesame" to success in all important enterprises. This constitution of mind, how-

ever, so indispensable to success in all active pursuits, is not the best suited for calm and impartial philosophical investigation. It is very apt to cause an entire concentration of the faculties upon the great end to be achieved, whilst other matters, perhaps equally important, not coming fully within the scope of the intellectual vision, like objects seen in the distance, lose their just proportions.

The Essay on *Calcareous Manures*, as its title imports, is intended to illustrate the importance and necessity of one special means of improvement. To be scientifically accurate, and to prevent all misconception of his true object, the author has introduced a new term, "*calxing*," to distinguish the special operation recommended, from the more complex operation, usually termed *marling*.

Under this term he embraces lime, whether quick or effete, and the carbonate of lime, in every form in which it can be presented; whilst sulphate and phosphate of lime are excluded, though having the same base, and possibly in some of their transformations in the earth, the same effect, they might, with propriety, be embraced under the general head of calcareous manures. This exclusive idea has had a prominent place in all the former editions, and although in the present one, the author has very properly availed himself of the new lights afforded by agricultural chemistry to modify such of his views as seemed to him to require change, he has seen no reason to modify them at all in regard to the peculiar value of *calxing*.

He has, on the contrary, found in modern writers new views which have been used with great ingenuity and ability to enhance his estimate of the advantages of this peculiar operation. We are, if possible, more and more convinced by every day's experience and observation, of the indispensable necessity of *calxing* to the improvement of our naturally poor lands. It is indeed the *fulcrum* on which to fix the lever of improvement, and without it we are entirely powerless. Yet it is to be feared that unreflecting persons, influenced by the earnest reasonings of the Essay, and by the extraordinary success of Mr. Ruffin and his neighbors, may adopt erroneous opinions. Their great improvements, though mainly attributed to *calxing*, are, in a great measure, due to other most valuable enriching materials existing in the Pamunkey marl. And persons who attribute these remarkable effects to *calxing* alone, while themselves using a very different article, will certainly be disappointed in their expectations, and perhaps abandon in disgust all efforts at improvement. The marl used, with such striking effect, by Mr. Ruffin and others, in the neighborhood of Newcastle, contains about 40 per cent. of carbonate of lime, and is what is known as *eocene* marl, and is confined, so far as yet ascertained, to a few limited localities. It has been applied on comparatively a few farms, lying on the Pamunkey and James rivers. We learn, as we now write,

upon the best authority, that Professor Gilham has found by recent analysis that it contains, besides carbonate of lime, a large per centage of sulphate of lime, and also, in particular samples, large proportions of *ammonia* and *phosphoric acid*. These marls are almost *guano* and *calx* combined, and their effect is not surprising, when this fact is understood. The *miocene* marls, on the contrary, are found absolutely destitute of these fertilizing ingredients, and owe their value entirely to carbonate of lime, and are the only marls known or accessible in much the larger portion of Eastern Virginia. We look with interest to the forthcoming report of Professor Gilham, in confirmation of our views.* Deeming this a subject of vast importance in the present stage of agricultural progress in Virginia, we shall present our views upon it somewhat at large in the following pages. The power of *calxing* has prescribed limits, beyond which it cannot go. We believe there has been no instance in Virginia, or elsewhere, nor do we think it possible that there can ever be one, of the product of any *naturally poor* farm being brought up to an average on entire fields, from year to year, of more than ten bushels of wheat and twenty bushels of merchantable corn, to the acre, by calxing alone, however long continued, though the operation be aided by the use of all the putrescent manures that could be produced on the farm, and by plaster, clover and peas, and the best possible rotation. This is a strong assertion, but such a farm has certainly never come within our observation. We do not speak of crops, on particular fields, or parts of fields, on which all the putrescent manures may have been expended, but of entire fields, and farms, all brought under cultivation, and the average crops taken for a series of years. From this sweeping remark must, of course, be excepted some of the alluvial lands on James river and elsewhere which are known to have been very highly improved by a judicious system of cultivation, aided by lime, clover and plaster, and putrescent manures. The farm at Coggin's Point, of the improvement of which, under the management of its two most judicious and energetic proprietors, we have an authentic report, can barely claim exception. And this partial success only confirms our views when we are informed that a portion of this farm, at least, consisted of originally rich land, and that the improvements were made, to a considerable extent, by marl not very unlike that of the Pamunkey. We find, from the table on page 184, that its average product in wheat for the first fifteen years of marling, was 8.22 bushels per acre, and during the last series of sixteen years was 12.10 per acre—the crops increasing consi-

derably towards the close of the series, the last crop having been 16.81 per acre. Now it is not denied that these crops are much greater than could ever have been realized from any amount of putrescent manures alone, and with our valuable and effective labor, they were highly remunerative; but as we shall attempt to show, in the sequel, they are not equal to the products that may be reasonably expected from the poorest lands of Eastern Virginia in one-fourth the time by the use of calcareous manures as the basis, together with other necessary mineral and enriching manures that may be applied with much less labor and expense than have been incurred in making the improvements on this farm. It is impossible, we think, that we can be mistaken in these views, if any reliance is to be placed on our own experience and careful observation, and on those principles of agricultural chemistry that are now undisputed and recognised by all men of science, of every shade of opinion, as established truths.

These admitted truths being the basis of our reasoning, and often referred to, we desire the reader to bear in mind. They are the following:

1st. That all cultivated plants consist of certain organic and inorganic elements, which in all healthy plants, of the same species, preserve nearly invariable proportions.

2d. That the organic elements are carbon, oxygen, hydrogen and nitrogen.

3d. The inorganic consist of various mineral substances, such as soda, potash, magnesia, lime, phosphoric acid, &c. found in invariable proportions in the ash of the grain and stalks of plants of the same species, varying in plants of different kinds, but deemed essential in proper proportions, to the healthy existence of all plants.

4th. That the organic elements are derived chiefly from water and atmospheric air and the inorganic *entirely* from the soil.

In the twenty-fourth chapter we find many ingenious and plausible arguments in support of new doctrines, in some measure inconsistent with the views just indicated, and from most of these doctrines we must, with all due deference, express our dissent. We think that nearly every difficulty suggested by our author is susceptible of easy explanation, on principles first announced in this country by himself, or since ascertained by others, and now admitted to be chemical truths. We shall refer to acknowledged principles, without encumbering our pages with numerous authorities, taking it for granted that those who follow us in these investigations will not only examine closely the work of our author, but also the writings of the modern agricultural chemists.

The chapter discusses "other fertilizing powers and effects of calcareous earth" under the following heads, to wit: "1st. Causing the more rapid decomposition and perfect solubility of vegetable matters, otherwise inert or insoluble; 2d. Enabling either the soil, or the

* In connexion with this subject we append to this review an interesting letter from Robert W. Tomlin, Esq. of Hanover county, containing some valuable statistics as to the effects produced by the *coquina* marl in the neighborhood of Newcastle.

plants growing thereon, to draw from the atmosphere greater supplies of manuring or alimentary principles, namely: 1st. Carbon, to growing plants; 2d. Azote (nitrogen), from the atmosphere, through the instrumentality of leguminous plants; 3d. Nitric acid, and nitrates, to the soil, and thereby increasing the supplies of azotic principles to growing plants." It is not our purpose to argue in favor of any peculiar theory of vegetation, nor to become the partisan of any particular school of chemists. Our wish is to reconcile agricultural phenomena with known and established principles; and when a cause sufficient to account for a given effect is ascertained to exist, we deem it true philosophy to be content with that, without speculating as to other possible causes.

Our author in referring to the solvent power of potash and soda, and, by analogy, of calcareous earth, in reducing inert vegetable matter to a condition in which *organic manures* may be absorbed by the *roots of plants* as food, brings into collision two conflicting schools of chemists, maintaining opposite opinions with much show of reason on both sides; and so far from establishing a theory on solid grounds, only opens a wider field for controversy. The action of carbonate of lime and of the alkalies and alkaline earths, in neutralizing acids, now known to exist in most soils, and to be generated in the process of vegetable decay, in all soils, and admitted to be poisonous to plants, seems to us to be a key at once to every difficulty. Walk with us into the laboratory of Nature for a few moments, and we will endeavor to make these matters plain. Observe this new ground; it was cleared three years ago of a growth of oak, hickory, dogwood and chestnut. It is what is described in the Essay as "free light land," capable of producing about twenty bushels of corn to the acre, when first cleared; it has not been limed. Two years ago it was in wheat, very roughly ploughed in after the first crop of corn, and dressed with one hundred pounds of Peruvian guano, and yielded eighteen bushels of wheat to the acre. Observe the stumps, especially of red oak; around each is a vigorous growth of sorrel, interspersed with the decaying fragments of the wood that fall from the stumps as the decay goes slowly on. This land, now covered with weeds, would not without lime produce half a crop of wheat; not because it is poorer in vegetable matter than before, for it is, in truth, richer in that respect, but it is *decaying*, and not *decayed* vegetable matter, and the acid that arrests the decay also poisons cultivated plants. Observe the adjoining piece of land cleared a year or two earlier—this has been limed—the sorrel has nearly disappeared, and a vigorous growth of red clover has taken its place. Go with us now into that extensive field of black low ground. Ten years ago the larger part of this field was almost destitute of grass, and the little that appeared among the coarse weeds seemed to have no hold on

the earth, but might be scraped off with the sole of your boot. It was not then drained, and abounded with slowly *decaying* but not *decayed* vegetable matter, and was spongy and puffy. If in wheat, half the crop, at least, would be winter killed, and the remainder would yield a scanty product of shrunken grain on straw with scarcely strength to stand up. It has been drained and limed; you see now every spot is thickly covered with beautiful clover, with now and then, in the wettest parts a sprinkling of sorrel. It is now firm to the tread, and produces heavy crops of corn and wheat without guano. Observe this little peninsula, nearly surrounded by ditches—this was the head of a gum swamp, so shaded that the vegetable matter in it was nearly *peat*. Upon being exposed to the sun and air it became sufficiently decomposed to produce corn. Wheat was attempted but was destroyed by sorrel, the result of the acid generated by the slowly decaying *peat*. It has not been limed. It will be sowed in oats after corn, and not having lime at hand, we shall dress it with ashes, which will neutralize the acid, and at the same time furnish the potash necessary for the immediate use of the oat crop. Now what is the philosophy of all this? Decay (or *eremecausis*) is nothing more nor less than slow combustion, and the *dust*, which is the final result of complete decay, is precisely the same in its chemical elements with the ash of the same vegetable substances, yielded by burning with fire. And it is not until this process of decay becomes complete that any portion of the inorganic food of plants is furnished. Acids of all kinds arrest or retard decay, and water, in excess, has the same effect. Now when the lands, which we have just visited, were drained and limed, the checks to decay were removed, the vegetable matter in the soil, in the presence of heat and atmospheric air, proceeded, without hindrance, in the natural process of decay, until the inert matter was reduced, in a great measure, to its ash, and furnished a large portion, at least of the mineral elements required for the perfection of the cultivated plants; and the soil relieved of its redundancy has become firm and sound. It does not follow, because reduced to its ash, that all this vegetable matter has been destroyed; its mineral elements, except such parts as have been consumed by the crops, remain still in the soil for future use; and the ammonia, which existed in combination with the vegetable matter, though set free by the operation, is not dissipated, but is retained by the absorbercy of the earth, or enters into new combinations in the soil, and is preserved until used up by the growing plants, as explained by Johnson in his lectures.—(410-11.) The crops, however, being greatly increased by the process of liming and draining, have consumed a much greater amount of the necessary elements found in the soil, which must of course be restored, to keep up the fertility of the land.

The remarkable effect of calxing on the rich neutral soils of James river, of which a new explanation is attempted in this chapter, may, we think, be sufficiently accounted for, by the necessity of lime to neutralize the acid generated by the decomposition of the immense mass of vegetable matter accumulated on these lands under the enclosing system. And if further explanation be required it may possibly be found in the effect of clover acting as a "fibrous manuring" on calcareous soils, to which we shall have occasion hereafter more fully to refer.

On the second head of this chapter, "The effect of calcareous manures in drawing increased supplies of nutriment from the atmosphere," our author does not appear to write with his usual precision, or to reason with the clearness for which he is distinguished. Thus he says, page 243, "This question is, if the atmosphere always contains all the organic constituents of plants in inexhaustible quantities—and if plants derive from the atmosphere *nearly all* of their constituent parts—why should they ever suffer for want of a sufficient supply of nourishment, whether growing on rich or poor soils? The answer is, that the laws of nature forbid some of these gaseous bodies to be taken up directly by growing plants—or, at least, only under certain conditions; and these conditions are not dependent on the quantities of these gases present in the surrounding atmosphere, and are but slightly under the control of man, limited in knowledge as at present." We do not see how we are advanced at all in this investigation by reference to the laws of nature, which is a mere re-affirmation of the general fact to be explained, and which fact may be explained with entire satisfaction by referring to another fact, admitted by all agricultural chemists that even though all the *organic* constituents of plants were furnished by water and the atmosphere, the *inorganic*, though less in quantity, are quite as essential, and must be supplied *by the soil*. *Nearly all* the elements of an egg may be in the food of a hen, yet if denied lime to form the shell, she cannot lay a perfect egg. Again he says, "Thus the smallest but richest element, azote, *would seem* to be obtained by plants *principally*, or entirely, through their roots, and from the soil. *Therefore*, the supply to plants is in *no degree increased* by the prodigious quantity of azote in the atmosphere." This is plainly a *non sequitur*, besides being directly opposed to the experiments of Bous-singault, detailed under the next head, and adopted by our author; and also, in conflict with the teachings of Liebig, Petzholdt, and a number of modern agricultural chemists, who, whilst they deny that the *nitrogen of the atmosphere* is ever taken up by growing plants, yet maintain that the *ammonia*, which is always present in the atmosphere, is the principal, if not the only source of the supply of nitrogen (or azote) to plants. (Liebig, Organic Chemistry, 146. Petzholdt, Lectures, 57.) We do not

mean to take sides in this controversy, or to express an opinion as to the source of the *azote* of plants, a matter, in our view, yet requiring elucidation. Again he says on page 247, "The foregoing views seem to offer the only plausible explanation of that great mystery of vegetable life, that plants on barren land should pine or starve when surrounded by unlimited supplies, in air and water, of their necessary elements." Now this is no mystery at all, if by *barren land* is meant a soil entirely destitute of the *necessary inorganic* elements of plants, which can be derived from the soil only. And if by that expression is meant soils destitute of vegetable matter, the statement is not consistent with facts, said to be well attested, of soil, rich in minerals, continuing to produce large crops of grain, though destitute of vegetable matter, and never manured; as is said to be remarkably the case with the land in the neighborhood of Naples, which is kept rich, under continual cropping, by the disintegration of the minerals of which it is composed. Again he says, "If then we suppose that the very small proportions of necessary salts, found in the ashes of plants, are already in the soil (as is generally the case)," &c. Now this is a supposition by no means to be made, because not consistent with well established facts, and indeed the contrary has been demonstrated in the "Essay," in regard to one, at least, of these necessary salts, *lime*, which has been shown to be almost entirely wanting in the poor lands of Eastern Virginia; and we have no doubt that these lands are equally deficient in nearly every other necessary inorganic element. The evident confusion of the author, in treating this part of the subject, arises, we think, from his attaching too little importance to the *inorganic* portions of plants as a necessary part of the vegetable economy. Johnson, who is no disciple of Liebig, speaking of the presence of the *inorganic* elements in different plants, in definite proportions, according to their different kinds, says, "They are constant on every soil, and in every climate; they must, therefore, have their origin in some natural law." "A doubt can hardly remain that this *inorganic* matter forms an essential part of their existence and that they cannot live without it." (Lecture, 179 and 181.) Johnson says, again, "If one of these necessary inorganic forms of matter be rare, or wholly absent, the crop will as certainly prove sickly or entirely fail, as if the organic food, supplied by the vegetable matter of the soil, were wholly withdrawn. It is, therefore, as much the end of an enlightened agricultural practice to provide for the various requirements of each crop, in regard to inorganic food, as it is to endeavor to enrich the land with purely vegetable substances." We have been somewhat amused at the seriousness with which our author and Dr. Wight have put forth their facts and reasonings with regard to the supposed *peculiar* effect of carbonate of lime, as enabling plants to draw more carbon

from the atmosphere. It is only another evidence in addition to the great many furnished by the annals of science of the facility with which even the acutest intellects may be deceived by appearances when in the ardent pursuit of desired results. All these facts and reasonings may be conclusively answered by the general affirmation, *that whatever tends to increase the growth of the plant enables it to draw an increased supply of carbonic acid from the atmosphere.* For it being conceded that about fifty per cent. of all plants consists of carbon, and that all, or nearly all, of the carbon of plants is derived from the carbonic acid of the atmosphere, it is obviously impossible that the growth of plants can be materially increased by manure of any kind without causing a greater absorption of carbonic acid from the atmosphere. And the very ingenious and elaborate experiments of Dr. Wight amount to no more than this. Doubtless if he had tried a weak solution of guano or liquid manure from the stable, instead of carbonate of lime, his experiments would have been much more strikingly successful.

The facts, stated on page 253, as to the deterioration in the growth of wheat and other crops in the neighborhood of those, growing on limed and plastered lands, may be explained upon nearly the same principle. We may remark that a similar fact is frequently observed and commented on by farmers who use guano on wheat. So much so, that it has now become a subject of common remark among overseers and others, who say that "the land is insulted by guano," and that rich cow-pens, alongside of guanoed wheat, will now scarcely produce a tolerable crop. We had ourselves attributed this apparent fact to contrast, but it may possibly be literally true. The supply of carbonic acid in the atmosphere is in limited quantity, and the air may be enriched by adding a considerable portion of carbonic acid, thereby promoting greatly the growth of plants. This process, which, of course, is artificial and on a small scale, shows that the supply in nature is not adequate to the demand, and as plants consume it in direct proportion to their bulk, it must follow that lime, guano or any other manure that increases the growth of plants, without increasing the supply of carbonic acid in the atmosphere will, of necessity, enable the plants, thus rendered more vigorous, to deprive the weaker in their neighborhood of some portion of the already insufficient supply of carbonic acid; and thus the smaller would be impoverished by the larger, just as weak cattle, in a lean pasture, are impoverished by those stronger than themselves.

The effect of *calcizing*, in the improvement of land, by enabling leguminous plants to draw nitrogen from the atmosphere, as illustrated by the experiments of Boussingault, requires further examination before it can be adopted as ascertained truth. Johnson questions the certainty of Boussingault's experi-

ments, whilst Liebig, as we have already seen, denies the possibility of any portion of the *nitrogen of the atmosphere* entering into the constitution of plants, whilst he affirms that the atmosphere is the abundant source of the nitrogen of plants in the *ammonia* which is always present in small quantity and conveyed to the leaves of plants in dew, and to the roots in rain and snow water.

The views presented in regard to the power of calcareous soils to attract nitric acid, upon the principle of the artificial nitre beds of France, open a new and interesting field of inquiry, as yet but little explored. The facts, when ascertained, will go far to explain the remarkable manuring effects of *shade*, whether by clover or other "fibrous" covering. In Allan's "American Farm Book" there is an article on "*Gurneyism, or Fibrous Manuring*," in which most extraordinary effects are ascertained, by actual experiment, to have been produced by a simple covering of straw, and the results explained on the authority of a communication in the "British Farmers' Magazine," upon the principle of the formation of nitrates, as is done in the artificial nitre beds of France. It is stated upon this authority that grass, simply covered with straw, yielded six times as much as that not covered, and five times as much as that dressed with guano and other rich manures. These results were ascertained by repeated and most careful experiments, and no doubt is expressed of their entire accuracy. The manuring effect of clover, which, according to Boussingault, is out of all proportion to the quantity of vegetable matter contained in it, may probably be also accounted for on this principle. Dr. Robert Baldwin of Winchester, maintains, with great earnestness, that the sole manuring virtue of clover consists in its capacity to *shade the land*. He has maintained the principle of "fibrous manuring," without, perhaps, ever having had his attention drawn to the facts or reasonings by which it has been sustained in Europe. He maintains that clover is in no degree dependent for its fertilizing effects on the vegetable matter contained in the crop, but that it may be removed, root and branch, after it has performed its office of *shade*, without any diminution of fertility. Dr. Baldwin's views have generally been regarded as extreme, and we do not mean to endorse them. They have certainly new interest in connexion with these recent developments, and their author being a gentleman of undoubted intelligence and observation and a successful practical farmer, his facts and opinions are at least entitled to respectful consideration. We have now under our view the most striking evidences of the effects, on a large scale, of simply covering fields, in grass, with straw, which are vastly beyond any results that could possibly be attributed to the mere manuring effect of vegetable matter.

Having concluded the strictures which, in the impartial character of a reviewer, we deemed

it just to make, on the new doctrines contained in the 24th chapter, we proceed, in the further execution of our task, to offer some observations on subjects, which, if not so new or interesting, are at least of equal practical importance.

There are two offices performed by *calx* in soils now no longer a matter of doubt, which, independent of any other actual or supposed effects, make it of inestimable value. These are, that it neutralizes acids, now known to exist in all our poor soils, and that it furnishes one of the essential inorganic elements of cultivated plants. These alone are sufficient to satisfy any reflecting farmer of the indispensable necessity of calxing his land, and the practical question presents itself, what is the cheapest and best mode of effecting this operation? And intimately connected with this question the farther inquiry, what is the necessary and proper quantity of the material to be applied?

That calx has generally been applied in excess, as well in this country as in England, we have no doubt, and nothing but the very humid climate of England and the large quantities of vegetable manures applied in that country, in every form, has preserved it from utter sterility under the enormous dressings of lime that we learn from all her writers, ancient and modern, have been applied. The later practice of her farmers seems to be tending to a more rational system. In Virginia as small a quantity as fifty bushels of slaked lime to the acre has, in some cases, been found excessive. The Messrs. Harrison of Brandon, as we learn from a communication in the Farmers' Register, found seventy bushels to the acre entirely too much, and in their subsequent large operations reduced this quantity to thirty-six bushels. In France, whose climate and soil are very similar to ours, a very small dressing, even as little as eleven bushels to the acre, as we learn from Puvris, have been found sufficient for a single application. This practice, where the true office of lime is understood, is founded on the principles not only of science, but of common sense. Lime in the soil acts as a food and a medicine.

Your horse requires a gallon of grain to-night, you do not put in his manger a bushel in addition, to save the trouble of feeding him for the next four days. You suffer from a fit of indigestion—you know, from experience, that a few grains of carbonate of soda, lime, or magnesia will neutralize the acid generated in the stomach, which retards digestion and is the cause of your annoyance. You do not take a quarter of a pound, lest some days hence you may suffer from the same cause of annoyance. Now as essential food for growing crops, it is ascertained that a very small quantity of lime is required. A crop of wheat, both straw and grain, producing twenty-five bushels to the acre, consumes less than nine pounds of lime, and one bushel, if it could be applied in such manner as to be all available, is more than would be required as food for all

the crops in a full rotation of five years. Its effects as medicine can only be ascertained by close observation; and as the physician watches carefully his patient, and applies his remedies at every recurrence of the symptoms of the disease, so the enlightened farmer, by carefully noting the indications, may prescribe, with success, for his land. These opinions are not mere deductions from theoretical knowledge, but the result of long experience and the closest observation. We have had land in our own practice injured temporarily by fifty bushels of lime to the acre, and a small piece excessively dressed with shell lime, entirely *effete*, so damaged that it has not recovered under considerable applications of putrescent manures in more than twenty years. In the last few days we have walked over extensive fields, limed under our own eye, during the last fifteen years. The quantity applied was fifty bushels on the alluvial lands, chiefly black soil abounding in vegetable matter, and from fifty down to twenty-four bushels, on the "forest lands," such as are described in the Essay as "free light lands." The effect has been carefully noted, and but one portion of all this land gives any indication that more lime is required, and that is about twenty acres of the black land, somewhat wetter than the rest, for which, two years ago, we prescribed fifty bushels of lime additional to the acre, which was applied, and now, although well set in clover, a sprinkling of sorrel indicates the presence of some acid. In the "forest lands," where but twenty-four bushels to the acre were applied, we have observed that around the red oak stumps the decaying wood, (which, according to Liebig, contains at least 50 per cent. of humic acid,) has been entirely decomposed, and the sorrel, which was formerly matted about them, has given place to a firm sod of greensward. We conclude that more than fifty bushels of slaked lime to the acre at one application is never advisable, and that twenty-five bushels are more frequently quite sufficient, and that reliming, even at this small rate, will not usually be required for a number of years.

Slaked lime is delivered on the rivers at seven to eight cents a bushel. The cost of hauling so small a quantity as twenty-five bushels to the acre, upon the estimate of marling expenses by Mr. Ruffin, presently noticed, would be, even for considerable distances, so trifling as not materially to add to the expense.

As a practical matter of great importance we have carefully examined the estimates of marling expenses detailed in chapters 28 and 29 of this work. And whilst we entirely concur in the general remarks with which the subject is opened, and have not the smallest doubt of the entire accuracy of the detailed statements, we think the estimate of expenses was much too low, even at the price of labor prevailing at the time they were made; and that they are now farther below the mark, by at least 100 per cent. since the late great rise

in the price of labor. The results attained by Mr. Ruffin were most extraordinary and are attributable only to his own peculiar energy and exact method, and to the great efficiency of slave labor, when properly directed. Without being familiar with the peculiar details of marling labors, we venture the assertion, that in no other case, under the most favorable circumstances, has any thing like the result attained by him been accomplished by any other person. By the table on page 351, we learn that his labors on a large scale resulted in hauling one hundred bushels of marl, weighing 105 lbs. to the bushel, half a mile from the pit to the field, at a cost of 24.46 cents; and including all other expenses, of digging, spreading, &c. costing on the field less than 54 cents the hundred bushels. It will be observed that the cost of hauling half a mile is less than one-fourth of a cent a bushel, or less than four and a half cents for 1890 lbs. a full load for two mules. Now we venture to say that in any part of the world, out of the slaveholding States, the same work would cost four times the money, and yet we are constantly reproached with the inefficiency and expensiveness of slave labor. We find in Stephen's Farmer's Guide, Vol. II. 669, some estimates of the expenses of marling in England, where wages are said to be at a very low point. In these estimates the cost of hauling a load of forty bushels of marl one mile is rated at three shillings and six pence sterling, or about eighty cents, or two cents a bushel for one mile, and one cent for half a mile—just about four times Mr. Ruffin's estimate. But, as we said before, we think Mr. Ruffin's estimate much too low for operations, even in Virginia, as they may be expected to be conducted under the best common management. In illustration of this, we append a letter from Mr. Charles B. Williams, Recording Secretary of the Virginia State Agricultural Society, furnishing many valuable statistics on this subject.

The cost of marl, if it were fourfold greater than it is, would be fully justified by the profits that accrue from it. Our object is not to dissuade persons from its use by magnifying the estimate of its expense, but to furnish true data from which the relative cost of calking with lime or marl, may be properly estimated. It is obvious that the advantage of one over the other depends mainly on distance, as the principal expense is incurred in the hauling. When the marl is rich, easily accessible, and not distant, say not over a mile, marling would probably be cheaper than liming. At a greater distance than one mile, unless the marl contain some other fertilizer than carbonate of lime, lime would, no doubt, be cheaper. Twenty-five bushels of slaked lime, in the state of fine powder, in which it is applied, is, no doubt, fully equal, at least, for early effect, to one hundred bushels of marl, containing 80 per cent. of carbonate of lime, as it is usually found in undissolved shells, and frequently in indurated masses. These observations do not

apply to marl rich in phosphate and sulphate of lime, and possibly other enriching matters of such value as to bear carriage to great distances. And some of the Pamunkey marl, with even as little as 10 per cent. of carbonate of lime, yet abounding in other valuable matters, may, upon the principles we have endeavored to illustrate, yet be found of much greater value than they have heretofore been supposed to possess; thus Prof. Gilham of the Virginia Military Institute, is said to have ascertained, by analysis, that some of these marls contain as much as 18 per cent. of sulphate of lime, besides the phosphate and other valuable matters. We have never seen any farm on which these marls have been used, put under an ameliorating system of cultivation, yet we have no doubt, from what we have observed of their effects on farms in the neighborhood of Hanover Town, that they would be productive of the highest degree of fertility if a milder rotation were adopted in lieu of the scourging system of cultivation now common in that neighborhood. Indeed if any reliance is to be placed in an experiment carefully conducted by Petzholdt, and reported in his lectures, (page 99,) the soil would not only have the benefit of this manure as gypsum, if in that form it has any peculiar value, but the sulphate of ammonia would be largely formed in the soil, and the sulphate of lime actually converted into the carbonate, so that in this view these marls, even for the mere purpose of calking, have a much greater value than has been heretofore attributed to them.

We had wished to present some statistical views of the improvement of lands in Eastern Virginia, since the publication of the "Essay," and which are mainly due to truths first promulgated in that work, and enforced by its author and his correspondents in the pages of the Farmers' Register, so long and so ably edited by him. But our limits forbid it; and indeed, statistics are scarcely necessary in proof of a fact of which we have evidence on every side. We see it in the renewed hope and enterprise of our people; in the increase of wealth, public and private; in the improved condition of our schools and colleges, which thirty years ago were like "banquet halls deserted," but now are crowded with ingenious youths, chiefly sons of thriving farmers, in earnest pursuit of that knowledge which at once secures and constitutes the true riches of a republic. We see it in the improved aspect of the country—in the old hearths, once desolate, now cheerful and happy—in the increased commerce of our cities, and in the renewed beauty of our lovely villages. Every citizen who has been induced to remain—every returning emigrant, whether in robust health, with hope revived, to commence again his labors among us, or broken by care and disappointment, he returns from his wanderings to lay his bones quietly with his ancestors, is a living witness of this gratifying fact.

The most important part of our duty remains

yet to be performed. We have now to fulfil our promise to the cultivators of *poor lands*, to point out a plan by which they may speedily, cheaply and certainly render their farms productive, and themselves, if not rich, at least independent. This, we have the pleasure to say, is an easy task, yet we would not venture upon it, and incur the hazard of being classed among empirical pretenders, if we did not know that the plan suggested is founded in the true principles of nature and of science, and has been sufficiently tested by actual experience. It consists in correcting in the soil whatever is injurious to vegetation, and in giving to it *all those elements necessary for the growth of plants, which science teaches, are derived only from the soil.*

The prescription is for *poor lands*, and it applies to all dry lands from the mountains to the sea, let their poverty be ever so extreme, provided they are not precipitous, have a sound subsoil, and do not contain more than 95 per cent. of sand. Alluvial lands are not embraced, for though in many cases unproductive, they cannot be called poor, and their improvement demands a somewhat different treatment—embracing a system of careful drainage. The lands, more particularly within our view, are such as the originally thin and thoroughly exhausted “forest lands” of the Northern Neck and the counties of Essex, Middlesex, King William, part of King and Queen, and Caroline, and all the counties below tide-water, of similar geological formation. These lands in their most reduced condition, produce scarcely a barrel of corn to the acre, and no wheat, and where turned out to rest, are covered with a scant growth of poverty-grass. Few entire farms are in this condition—the most neglected having small spots of improved land. We suppose our plan, however, to be applied to a farm on which there is no spot improved, and all reduced to the lowest possible condition. Yet we would guarantee that in the short space of five years, the average crop of wheat shall be brought up fully to that attained at Coggins’ Point in the last sixteen years, of a period of marling alone, extending back more than thirty years; and that all the expenses of the improvement shall have been paid out of the crops, and if the proprietor has been industrious and economical, the price of the farm paid besides; and that in the next five years the average product in wheat shall be so much greater than that attained at Coggins’ Point that the whole expense of manuring and harvesting shall be paid out of the surplus, and the average crop of Coggins’ Point be left as clear profit. And though our experience does not extend thus far, we have no doubt that in another round, or two rounds of crops at farthest, the product of this poor land shall be found at least equal to the highest average on the richest and most highly improved farms in the State. This seemingly wonderful result is to be produced by adding to the effects of calcareous manures the still more striking in-

fluence of Peruvian guano, aided by a judicious rotation, proper culture and due attention to putrescent manures.

The arable land should be divided into five equal parts, separated by fences or not, as may suit the convenience of the proprietor, and the fields cultivated in the succession of corn, wheat, clover, wheat on fallow, and pasture: every grain crop to be manured, and the land to be *calced* with twenty-five bushels of lime to the acre, or its equivalent in marl, as the fields come successively in corn; the composts and well rotted manures to be applied to the corn in the hill; and if the supply is insufficient to dress the whole, the deficiency to be made up with guano, at the rate of one hundred pounds to the acre, applied either when the land is broken, or after the corn is thinned, and just before the dirt is thrown to it. The manuring of the corn in the hill is a great saving, and pays a handsome profit on the manure, but is not relied on as a means of improvement. The wheat, on both corn land and fallow, to be dressed with two hundred pounds of Peruvian guano to the acre. The corn-field wheat to be sowed in clover. The surplus straw to be applied as a top-dressing to the young clover, if it can be applied soon after harvest; if not, to the field that had been in fallow wheat, and that will be next in pasture. Let no hogs enter the fields, unless for gleanings; and limit the amount of stock of all kinds to the actual necessities of the family. If this plan is strictly adhered to in every round of crops, and the lime repeated, should the appearance of sorrel indicate the presence of acid, we regard the result predicted as absolutely certain. When first taking possession of a farm so poor as to be reduced below the sorrel point, it may with great profit be all fallowed, dressed with guano and put in wheat. Such lands have in the first crop yielded enough to pay all expenses and the purchase money of the farm. But it will not do to repeat the wheat crop without previous *calcing*, as the sorrel will destroy it. These results are *certain* and *speedy*. They are also *cheap*. For although the plan requires the annual outlay of money, yet the capital is certain to be returned, with more than 50 per cent. profit at the end of the year, whilst the land progressively improves. The beauty of this system consists in the facility with which it may be accommodated to the circumstances of farmers of every degree. The rich and the poor, the owners of slaves and those who have none, the tiller of fifty and the tiller of five thousand acres may all equally avail themselves of its advantages. All that is necessary to insure success is faith, energy, perseverance and a little capital, or if that be wanting, reputation for integrity, which, for such a purpose, will certainly command it.

We have thus brought our labors to a close, whether satisfactorily or not we must leave to our readers to decide. We have endeavored to avail ourselves of all the lights before us,

and while it has given us peculiar pleasure to do justice to the distinguished merits of our author, we have not hesitated to express, with the candor which we know he would both practice and approve, our dissent from such of his doctrines and reasonings as we deemed erroneous. It is not at all improbable that in pointing out his supposed errors of opinion upon questions purely scientific, we may have fallen into much greater errors ourselves. Our main purpose has been practical. We believe the team of our author both sure and strong, yet we think he drives rather too slow a coach for this go-ahead age. We desire to accelerate the motion, that agriculture may keep pace with other industrial pursuits. And for this purpose we earnestly recommend the use of such additional means as we feel sure will accomplish the end in view. We wish to see the tide of emigration not only checked, but arrested, by convincing the people of Virginia that there is no necessity to leave the homes of their ancestors in order speedily to better their condition. Some are yet distrustful. We occasionally see one who, apprehending that his family may want, is casting a wistful look towards Texas or California, or what is still worse, towards Washington. To all such we would speak a word of encouragement. Be of good cheer; "Put thou thy trust in the Lord, and be doing good: *dwell in the land, and verily thou shalt be fed.*"

—
Ditchley, February 21, 1853.

HON. WILLOUGHBY NEWTON:

My Dear Sir,—Yours, post marked 12th, reached me on the 18th of this month, and I most cheerfully comply with your request, to wit: "to give you a statement of the improvement of my father's land, since the division among his heirs," and also send you some valuable statistics of marling, attained by one of my immediate neighbors, Mr. Carter Braxton, whose estate lies on the Hanover side of the Pamunkey river, and immediately opposite to my father's land, in the county of King William.

My father's estate was divided among his heirs in 1831. At that time, my younger brother, Col. H. B. Tomlin, and myself were minors. Four portions of the estate (all that part lying in the county of King William,) were cultivated as one farm, under the management of the late most estimable and excellent Gen. Corbin Braxton—our guardian. That the estate, under his direction, was judiciously managed, I need give you, at least, no assurance. The land was thoroughly cultivated, and drained as rapidly as circumstances would permit. All the putrescent manure, both stable and barn-yard, that could be made, applied to the land in good time; while the poorest spots, well covered with partially rotted straw and chaff, had the cattle penned on them during the summer months. The farm was cultivated on the usual exhausting three-shift and grazing

course of that time. With all the General's known skill and good judgment ever displayed in the general details of farming, he was only able to keep the corn crop of the farm stationary, while the wheat crop diminished yearly, (even on the highly cow-penned spots the wheat always tumbled and was badly rusted,) until it was a nice question whether the wheat crop paid expenses of cultivation. In the year 1838, the farm was divided into three farms, and each of the three put under the four-shift system in 1839. Before the year 1838, some marling had been done in spots, at about one hundred and fifty bushels to the acre, which marl proved to be very poor in carbonate of lime. The scourging rotation of three grain crops in four years proved with us improper, as the wheat on the fallow field, not marled, was so damaged by sorrel as to bring the average below the yield of the corn-field wheat, and even on the few marled spots, where only a bunch of clover could be found, this was so closely grazed by the stock as to give but a very poor yield in comparison with results since obtained from clover fallow under the present five-shift system. The necessity of having a pasture and the sorrel together drove us into the five-shift system in 1843. Between 1838 and 1843 we made greater exertions in marling yearly from the banks we use at this time—the blue eocene marl; that used prior to 1838 being the grey eocene marl. Not till 1844, did we succeed in marling a whole field in a season. Since 1842, I have never failed to have a good stand of clover, and a good growth sufficient to mow. In 1843, we commenced sowing the field pea in our corn crop at the last working, and have continued to sow it up to this time.

The wheat crop on the land I now own, in 1838 averaged 3½ bushels per acre.

The wheat crop on the land I now own, in 1851 averaged 24½ bushels per acre.

The wheat crop on the land I now own, in 1852 averaged 21 bushels per acre, notwithstanding the fresh of the river in the last of April covered two-thirds of the land, and so damaged one-third as to yield only 11 bushels per acre.

The corn crop of 1838 averaged 20 bushels per acre.

The corn crop of 1850 averaged 55 bushels per acre.

The corn crop of 1852 averaged 37½ bushels per acre—damaged by fresh in April, killing my corn, baking my land, had all to be re-ploughed and planted just before harvest.

On Col. H. B. Tomlin's farm, wheat crop of 1838 averaged between 2 and 3 bushels per acre.

Wheat crop of 1851 and 1852 averaged between 24 and 25 bushels per acre.

Corn crop of 1838 averaged 15 bushels per acre.

Corn crop of 1851 and 1852 averaged 35 bushels per acre.

On my sister's (Mrs. Coulton) farm, man-

aged by Col. H. B. Tomlin, wheat crop of 1838 none sowed—oats substituted.

Wheat crop of 1839 averaged 3 bushels per acre.

Wheat crop of 1851 averaged 28 bushels per acre.

Wheat crop of 1852 averaged 20 bushels per acre.

Corn crop of 1838 averaged 17½ bushels per acre.

Corn crop of 1852 averaged 40 bushels per acre.

Mr. Carter Braxton's estate, wheat crop in 1840 averaged not quite 3 bushels per acre.

Wheat crop in 1851 averaged 18 bushels per acre.

Wheat crop in 1852 averaged 15 bushels per acre. Some 60 or 70 acres very much damaged—some producing nothing—from the fresh of April.

Corn crop of 1840 averaged 19½ bushels per acre.

Corn crop of 1852 averaged 50 bushels per acre.

Since 1842 the wheat crops and corn crops have steadily increased on each field in the rotation over the preceding crops.

Now, my dear sir, since without marl our lands will not bring clover—since without marl our lands would not yield a growth of pea vine sufficient, in a growing corn crop, to be of benefit to pay for the peas—since without marl the five-shift system will not answer, as the sorrel destroys the wheat on the fallow field, am I wrong to give to marl the credit of being the true and only basis of this increase of product? Before marling, the more sandy soils, when not under cultivation, naked and liable to be drifted by high winds in very dry weather, while the stiffer soils presented little in their growth, save poverty-grass, sorrel and the running blackberry brier. After marling, our fields in winter covered with dark weeds and in the spring with luxuriant red clover, and when this should fail, (from bad seeding, even on a few feet square,) a certainty of seeing a verdant turf of the white clover. Of marl, and its benefits, I should never have known anything, but for the Essay on Calcareous Manures, by my much esteemed neighbor and friend, Mr. Edmund Ruffin, which you propose to review. In haste,

Very truly, yours,

RO. W. TOMLIN.

Richmond, February 18, 1853.

HON. WILLOUGHBY NEWTON:

My Dear Sir,—I received your esteemed favor of the 11th instant on yesterday, and having availed myself of the means of information within my reach, I now proceed with pleasure to answer your inquiries. The daily hire of a cart, with two mules and a driver, when engaged in continuous labor in any of the departments you mentioned, is, and has been for a number of years, \$2 50 per day,

as I learn from bricklayers, dirt diggers, teamsters on the streets, &c.—the driver being an able bodied man, capable of loading and unloading with facility and dispatch. For removing a full load (the standard fixed by City Ordinance at 1500 pounds,) for the distance of half a mile, supposing it to be part of a continuous and large job, the price is 25 cents per load. The price for hauling a load of guano, is 36 cents from Rocketts, say three-quarters of a ton. For wheat there is no price current—the millers having for several years received that article at the landings and depots free of the expense of hauling to the vendor.

I had a conversation with Col. T. J. Randolph, an extensive railroad contractor, who being requested to furnish for the State Engineer an estimate, founded on his experience, of the actual cost *per day* of a one horse cart—horse and driver, with a yearly addition to the actual expenses of a reserved fund sufficient to reproduce the permanent capital; that is, the horse in 6 years and the cart and fixtures (I think) in 5 years—entered into the following minute calculation, founded on these elements:

ESTIMATED COST OF CART, HORSE AND DRIVER.

A cart and gear cost about \$40. The same, with occasional repairs, will last five years. Allowing 270 working days, 10 cents per day for interest on cost and wear and tear, would be \$27 a year; or \$135 in the five years to repair, pay interest and renew.

A horse will cost \$120. The same will last six years. 10 cents a day will pay interest on cost and renew in six years. Feeding and shoeing a horse, at 30 cents a day, \$109 50 per annum. This amount, for 365 days, is equivalent to 40 cents a day for the 270 working days.

The driver is usually an inferior hand or boy, hired from \$50 to \$80 per annum. Average hire never more than \$70 00
Bread for the same—4 lbs. of meal, at \$3 50, - - - - - 14 00
Meat for the same—4 lbs. a week, at 11 cents, - - - - - 22 88
Clothing for the same, - - - - - 18 12
Contingencies, - - - - - 10 00

270 working days, at 50 cts. per day, \$135 00

Summary.

Repairs, interest on cost and renewal of cart, per day, - - - - - 10
Interest on cost and renewal of horse, per day, - - - - - 10
Feeding and shoeing the same, per day, - - - - - 40
Cost of driver, per day, - - - - - 50

Actual cost of horse, cart and driver, per day, - - - - - \$1 10

In this connexion I will mention that the daily hire in Richmond for such an equipage as above described is, for continuous labor, \$1 50 per day, with a light boy for the driver. Pursuing the line of calculation suggested by Col. Randolph, I have estimated the expense

of a street, or two-horse cart, and a pair of mules and driver, by the standard of Richmond prices, which may serve *pro forma* as a statement, applicable, with modifications, to every variety of circumstances, which I annex:

Capital Invested.

2 mules, at \$125 each,	-	-	\$250 00
1 two-horse cart and gear,	-	-	55 00
			<u>\$305 00</u>

Annual and Daily Expenses.

Yearly int. on cost of mules and cart,	\$18 30
Sinking fund to replace mules once in seven years,	35 72
Sinking fund to replace cart and gear twice in seven years,	15 71
Horse and driver \$125, clothing, subsistence, &c. \$60,	185 00

Subsistence of Mules, Shoeing, &c.

40 barrels of corn, or equivalent, at \$3,	120 00
7500 lbs. of fodder, " "	75 00
Shoeing, &c. - - -	12 00

Amount of annual expenses, - \$461 73
which, if divided by 270 working days, ascertains the daily expense to be equal to \$1 71. Take the items to be carried to the sinking fund, \$35 72 and \$15 71, and multiply them by 7, and they will be seen to produce the aggregate of \$360.

Thus it appears that such an establishment as produces a daily hire in this city of \$2 50, actually costs *in perpetuity*, \$1 71 per day.—The cost, as per above statement, is \$305; the reserve fund, \$360, which reduced by the purchase of a new cart and gear at the end of three years and a half by the sum of its cost, \$55, leaves the capital *entire*, at the end of seven years, for the renewal of the operation for a second series of seven years. I hope this will be found useful, however inaccurate it may be in details, as a formulary which seems to be founded on correct principles, for similar estimates, upon actual expenses. I shall look for your forthcoming review with considerable anxiety, not doubting that it will be a valuable contribution to the cause of agriculture.

CH. B. WILLIAMS.

For the Southern Planter.

LANDS IN AMHERST.

Mr. Editor,—My eye is frequently falling upon notices in the newspapers of Washington and Richmond of sales of land at remarkable high prices, both in the great Valley of Virginia and more recently in some of the counties east of the Blue Ridge. I have just noticed in the Richmond Dispatch, of the 21st of this month, a notice of a recent sale of a farm in Culpeper county at \$35 per acre. In the month of November, in passing through the

county of Albemarle, I had various farms pointed out to me that would bring from \$30 to \$60 per acre; and in quite a mountainous part of the county, and bordering upon the Nelson line, there was a farm pointed out to me as a sample of \$25 land. The owner, who was near by, remarked that he had refused that sum very recently for it. I am well acquainted with the lands from Lynchburg to the Potomac river, and have never yet been able to see why it is that there is or should be such a vast difference in the price of land in the counties of Bedford, Amherst, Nelson, Albemarle, Orange, Culpeper, Fauquier, and Loudoun. In the counties of Amherst and Nelson—and particularly Amherst—land, yes hundreds if not thousands of acres, can be purchased at from \$12 to \$20 per acre, that was originally, and I hesitate not to assert can now be made equal to any of the high lands in any of the counties I have mentioned, by deep ploughing, fallowed with clover, and a liberal application of plaster. The county of Amherst has and must have advantages that no other county in the State can have, viz: there is now a canal running around two sides of it, and in a few years there will be a railroad through its centre, connecting Lynchburg and Charlottesville. And only behold Lynchburg! It is now a city, with more factories and more capital than Richmond itself—that is trying to draw everything in the way of trade into its jaws. I have been a resident of this old *free State* (as it is familiarly called, from the fact that once upon a time the citizens were so universally in debt that you could not get a single case tried in the county court—but this is not now the case; this county is as free from debt as any in the State,) for six years, and well do I remember speaking with a large farmer, who was an intelligent gentleman, as to my intention of seeding timothy, for the purpose of making hay. He and several others remarked that this was not a grass county, and said if I did seed timothy, I would find that it would grow, but would never get up high enough to cut for hay. February, 1848, I did seed timothy and clover with oats, on flat land—June, 1849, '50, '51 and '52, I cut as good crops of hay as I ever saw cut off of land in the great Valley of Virginia; of the same strength or fertility. All I did after ploughing deep and seeding, was to put on it every *January* from a bushel to a bushel and a half of plaster, and when I had it, I would add two bushels of ashes per acre. I also seeded English blue grass, timothy and clover upon upland—really red land, and much of it perfectly naked—and in twelve months time I had as nice turf for grazing as you can find in South Western Virginia. This was all accomplished on rented land.

I will also state that I have found that deep ploughing and cultivating the same land two or three years in succession, with a good application of plaster to each crop, would cause the land, if left out a year or two, to cover

itself with the valley or dwarf blue grass and greensward. This has convinced me that all the land in this region wants is deep tillage and some sort of stimulant, and protection for twelve months after seeding, and it will make as good a grass country as any portion of Virginia I have yet seen. If tobacco would get down to one dollar per hundred, and remain at that low price for ten years, Amherst would vie with any county east of the Blue Ridge for grass and stock. But tobacco has been its ruin, and is yet a great drawback to its improvement. Bushes, briars and broomsedge are the pests of Eastern Virginia. But I have found deep ploughing, heavy harrowing with crooked teeth, if there are many briars, followed with thick seeding of clover and a plenty of plaster, and as little grazing as possible, until a month or two before fallowing, then graze until perfectly naked, if you can before you plough, will make more wheat per acre than most farmers believe can be grown on \$12 or \$20 land.

I had no idea of writing to such length, but have been led on from one thing to another until I have spun out quite a lengthy piece. But all I have stated are naked facts, which can easily be proven if necessary.

I. I. HITE.

Amherst Co. January 23d, 1853.

For the Southern Planter.

SEED CORN.

Mr. Editor,—Thinking over the little article in your March number, from Mr. Noland, upon the subject of seed corn, it occurs to me that my own experience is probably "confirmation strong" of the view he takes. When I purchased my farm, eight years ago, I found upon it a very superior kind of white corn, which had been cultivated here, no doubt, upon the old-fashioned system of five feet by two. I have continued to plant it, but much thicker; and whilst making probably double the quantity of corn upon the same land which my predecessors did, I have observed year after year a manifest depreciation in the quality. Several years since a neighbor of mine recommended and gave me some of his corn, which was very fine—a large, flinty, white corn. He, I know, practised thin planting. That, too, I observe, under the thick planting system, though upon first quality river bottom land, has considerably deteriorated. At all events, without these facts, I can but think it a matter of no little importance, and shall certainly take some pains forthwith to act upon Mr. N.'s suggestion. I

should think, however, that a separate patch for seed was more indispensable in your county, where the practice of cutting down corn in the green state is pursued, than in Eastern Virginia, where that is never done, that I am aware of. Apropos of that subject—if you will excuse me for trespassing further upon your time—I should look upon the introduction of that practice into this tobacco growing country as one of the most beneficial results ever brought about, by a mutual interchange of thought among farmers of different sections, but for some little difficulties which, as yet, I have not been able exactly to get rid of. In the first place, to stack the corn on the wheat field, and go upon it with teams afterwards, is out of the question, for many reasons; in the second, to haul it to the barn at the time it is cut, as Mr. Gilmer says he does, it seems to me is rather "too much pork for a shilling;" for I do think, except wet bricks, green corn is about the heaviest hauling I ever undertook. But, sir, I do feel exceedingly interested in this matter, and hope to see in your columns the views of farmers, more experienced than myself, in relation to it; for if the points above alluded to are settled satisfactorily, I can only say for myself that I would save twice as much good fodder as I now do, and at least a fortnight of good October weather, and I need not tell wheat and tobacco makers what that is worth.

Very truly, yours,

G. F. H.

Elkora, April 9, 1853.

For the Southern Planter.

Appomattox Depot, Amelia, April 4, 1853.

Mr. Editor,—If the following can be published in the Southern Planter early enough to guard the farming community against probable loss and disappointment, it will be well to insert it:

KETTLEWELL AND GUANO.

Hearing from various quarters that the first named article, which has a mixture of guano in its composition, was equal to or better than the Peruvian guano alone, I procured a ton, to experiment with on wheat, last fall. On a field of fifty acres I sowed forward Purple Straw wheat, applying 300 lbs. Peruvian guano to each acre, excepting where an equal quantity

(300 lbs.) of the Kettlewell was sown in such a manner as fairly to exhibit the difference in the vegetation, growth and maturity of the crop. Up to this time, (April 4th,) the prospect and difference in favor of the guanoed part is as two or three to one—the Kettlewell being very little better than unaided land. Gentlemen who are hesitating on the subject are invited to call on me, two and a half miles southwest of Appomattox Depot, on the Danville Rail Road, any time between this and harvest, and make up their own verdict.

THOMAS MEAUX.

P. S.—I omitted to state that the entire guanoed surface is as green as a leek, and would generally hide a hare. T. M.

THE MERINO SHEEP SPECULATION OF 1815-17.

The Merino sheep speculation was one of the most extraordinary bubbles that ever was known in America. It had its origin, in the year 1815, soon after the treaty of Ghent; and at a time when thousands of our people were actually under the influence of manufacturing mania. In the summer of that year, a gentleman from Boston imported some half dozen sheep from one of the Southern provinces of Spain, whose fleeces were of the finest texture, as it was said, and such undoubtedly was the fact, though the sheep were so thoroughly and completely embedded in tar and every other offensive article, that it would have been very difficult to prove it. But the very offensive appearance of the sheep seemed to imbue them with a mysterious value, that rendered them doubly attractive. It was said that the introduction of these sheep to the United States would enable our manufactories, then in their infancy, to produce broadcloths and other woollen fabrics of a texture that would compete with England and Europe. Mr. Clay was consulted in reference to the sheep, and he at once decided that they were exactly the animals that were wanted.

The first Merino sheep sold, if I recollect right, for fifty dollars the head. They cost a dollar in Andalusia! The speculation was too profitable to stop here; and before a long period had elapsed a small fleet sailed on a sheep speculation to the Mediterranean.

By the end of the year 1816 there probably were one thousand Merino sheep in

the Union, and they had advanced to twelve hundred dollars the head.

Before the autumn of that year had passed away they sold for fifteen hundred dollars the head; a lusty and good looking buck was worth two thousand!

In New England, in the year 1817, the speculation, in consequence of the surplus importation, began to decline; but it steadily and rapidly advanced throughout the Western country. Kentucky, in consequence of the influence of Mr. Clay's opinions, was especially benefited.

In the month of August, 1817, I saw a Merino buck and ewe sold for eight thousand dollars; and even that was deemed a very small price for the animals. They were purchased by a Mr. Samuel Long, a house-builder and contractor, who fancied he had by the transaction secured an immense fortune.

This Mr. Long was actually rabid with the Merino fever; and, in proof of it, it is only necessary to relate a single anecdote. There resided in Lexington—and not more than a mile distant from Mr. Clay's villa of Ashland—a wealthy gentleman, named Samuel Trotter, who was, in fact, the money-king of Kentucky, and who, to a very great extent, controlled the branch of the Bank of the United States. He had two sheep, a buck and an ewe, and Long was very anxious to possess them.

Long often bantered Trotter for the sheep without success; but one day the latter said to the former, "If you will build me such a house, on a certain lot of land, as I shall describe, you shall have the Merinos."

"Draw your plans," said Long, "and let me see them." The thing was done, and Long eagerly engaged in the enterprise. He built for Trotter a four story brick house, about fifty feet by seventy, on the middle of an acre of land; finished it in the most approved modern style, and enclosed it with a costly fence, and handed it over to Trotter for the two Merino sheep! The establishment must have cost fifteen thousand dollars.

Months before the establishment was completed the price of Merinos declined gradually, and six months had not passed away before they would not command twenty dollars!

Mr. Long held on to them till they had reached the par value of any other sheep, when he killed them, made a barbecue, called all his friends to the feast, and whilst the "goblet went its giddy rounds," like

the ruined Venetian, he thanked God that he was not worth a ducat! He was ruined, and soon after died of a broken heart.—*New England Farmer.*



THE SOUTHERN PLANTER.

RICHMOND, MAY, 1853.

TERMS.

ONE DOLLAR and TWENTY-FIVE CENTS per annum, which may be discharged by the payment of ONE DOLLAR only, if paid in office or sent free of postage within six months from the date of subscription. Six copies for FIVE DOLLARS; thirteen copies for TEN DOLLARS, to be paid invariably in advance.

✂ Subscriptions may begin with any No.

✂ No paper will be discontinued, until all arrearages are paid, except at the option of the Publisher.

✂ Office on Twelfth, between Main and Cary Streets.

All communications for the columns of this paper, and all letters of inquiry, to insure prompt attention, must be addressed to Frank: G. Ruffin, Shadwell, Albemarle County, Va.

All business letters connected with the Planter must be addressed to P. D. Bernard, Richmond, Virginia.

It is indispensably necessary that subscribers ordering a change, should say *from* what, *to* what post office they wish the alteration made. It will save time to us and lose none to them.

TO CORRESPONDENTS.

We have a good many articles on hand which are crowded out by want of room or prior communications.

REVIEW OF THE ESSAY ON CALCAREOUS MANURES.

We make no apology for the length of this able paper. To us, as to many of our readers, no doubt, it is the more acceptable on that account. Subjects of such interest as it treats of cannot be compressed into very small limits without injustice to the public. We cannot better gain a fair hearing for it than by stating that it is the production of the Hon. Willoughby Newton of Linden, in the county of Westmoreland, of whom it may truly be said not only that he is a very worthy gentleman and a true, though retired patriot, but what is, perhaps, more to the purpose in hand, that

"A better farmer ne'er brushed dew from the lawn."

Thoroughly practical, he has in his production, as on previous occasions, given evidence that a knowledge of books and theories is not at all inconsistent with the highest skill in husbandry.

VIRGINIA STATE AGRICULTURAL SOCIETY.

We respectfully invite the particular attention of our readers to the schedule of premiums proposed to be awarded by the Society at its first annual exhibition. We hope there will not be wanting among the farmers, manufacturers and mechanics of Virginia the spirit of generous rivalry and active competition which is essential to the successful attainment of the ends proposed by the Society in offering their premiums upon a scale so liberal and comprehensive. For it is by such means they seek to promote the development of our agricultural resources—to cherish and diffuse the spirit of improvement in all the departments of rural labor and household economy—to foster enterprise and skill in procuring and rearing the best breeds of live-stock—to encourage useful inventions adapted to facilitate and economise the labor of agri-

culture—and though last, not least, to secure an annual convocation of the friends of improvement from every section of the Commonwealth, by which the contact of the members in kindly social intercourse and public and private discussions with each other may elicit important truths—correct prevailing errors in opinion and practice, and above all, cement in bonds of enduring friendship and confidential brotherhood those who have hitherto been sadly deficient in *l'esprit du corps* which ought to signalize them as a class, and whose common interest should incite them to hearty coöperation in securing to themselves the manifold benefits of associated action. The rules and regulations to be observed in conducting the exhibition, with such other matters as may be deemed pertinent by the Executive Committee, will appear in the June number of the Southern Planter.

TIDE WATER AGRICULTURAL SOCIETY

We have received the proceedings of the above Society, which met at Port Royal in the county of Caroline, on the 2d of April, and organized by the election of officers and the adoption of a Constitution and By-Laws. The former President, Dr. E. P. White of Caroline, resigned and was succeeded by Col. Ed. T. Tayloe of King George, President, and James P. Corbin, William P. Taylor, Richard Baylor and Rich'd Royston as Vice Presidents; Rich. H. Garrett, Recording Secretary; John Taylor, Jr. Corresponding Secretary; and R. S. Catlett, Treasurer.

The retiring President delivered a short address, touching upon the benefits of Agricultural Societies, the advantages of the peculiar region, Spottsylvania, Caroline, Essex and the Northern Neck, in agricultural point of view, and the necessity of the farmers of that region keeping up with the spirit of the age in agricultural improvement.

The Fredericksburg Herald says, "To the untiring energy of Dr. E. P. White of Caroline, is Tide Water Virginia chiefly indebted for the agricultural organization now in existence. With an inflexible will which knew no surrender, the Doctor worked on in this labor of unrequited reward until a Society was formed, which has quite recently been placed upon a firm footing." And we have heard from others that mainly, if not entirely, to his exertions do the people of his district owe the existence of this Society.

He is succeeded by a gentleman of known skill, zeal and public spirit; and seconded, as we hope he may be, by his colleagues of the Executive Committee and others, we must anticipate success to the Tide Water Agricultural Society.

VIRGINIA STATE AGRICULTURAL SOCIETY.

The Executive Committee met at the Exchange Hotel on Thursday evening, the 21st of April, 1853. Present P. St. Geo. Cocke, President; Harvie, Overton, F. G. Ruffin, Irby, Peyton and Williams.

Mr. Irby, from the Committee to revise and enlarge the scheme of Premiums for the first Agricultural Fair, made a report, which was laid upon the table for the purpose of conferring with the Committee of the Common Council of the city of Richmond.

Messrs. M'Cance, Anderson and Has-kins, the committee above referred to, were then introduced and announced to the Executive Committee the liberal propositions they had unanimously concurred in as fit to be recommended to the Common Hall for its adoption in respect to the furnishing grounds, fixtures and certain accommodations for the first Fair, if the Committee should decide to hold it in Richmond.

Mr. Harvie, from the Committee appointed to confer with rail road and other transportation companies, reported that the Directors of the Danville Rail Road Company had agreed to transport live-stock and other articles designed for the Society's exhibition to and from the place thereof, to the extent their road might be available for that purpose, free of expense for trans-

portation, and that the members of the Society might in like manner pass *free*.

Mr. Irby made a similar report respecting the action of the Directors of the Southside Rail Road Company, so far as that Road might be used in facilitating the transit of members and of subjects for exhibition to and from the place of holding it.

Mr. Cocke reported that the Directors of the James River and Kanawha Company had agreed to remit toll on all subjects for exhibition transported on their Canal, and also on members of the Society going to and returning from the Fair.

Similar proposals were directed through different members of the General Committee to be made to other rail road and transportation companies, but no reports have yet been received.

Resolved, That the Executive Committee will hold monthly meetings on the third Thursday in each month, the place and hour of meeting to be from time to time designated.

The report on Premiums was taken up and after considerable progress in the consideration thereof it was again laid upon the table, and the Committee adjourned to meet to-morrow morning at 10 o'clock.

Friday morning, 22d April, 1853.

The Committee met pursuant to adjournment. Present P. St. George Cocke, President; F. G. Ruffin and C. B. Williams.

The report on Premiums was taken up and adopted, per schedule annexed.

Adjourned to meet at the Exchange Hotel on Thursday, the 19th of May, at 4½ o'clock, P. M.

CH. B. WILLIAMS, *Rec. Sec'y*.

SCHEDULE OF PREMIUMS

To be Awarded at the First Annual Fair of the Virginia State Agricultural Society.

PARTICULAR SUBJECTS AND PREMIUMS.

BRANCH I.—Experiments.—For each of the eight best experiments, or series of experiments, on any of the following subjects, a premium as follows:

1st. Effects (in profit or loss) of the usual mode of saving corn fodder, by stripping the green blades and cutting off the tops, - - - \$20

2d. Cost and effects of subsoil ploughing, under different circumstances of soil and subsoil, - - - 20

3d. Action or non-action of lime as manure, above the falls of the tide-water rivers of Virginia, on different soil, - - - 30

4th. Action or non-action of gypsum, below the falls of the tide-water rivers, and on soils respectively originally rich and originally poor; and on the latter, after as well as before their being made calcareous, - - - \$20

5th. Cost and effects of bone-dust, (or phosphate of lime,) as manure, - 20

6th. How late, in reference to the growth, the last tillage (by plough or cultivator) should be given to corn for its best product; and whether the said last tillage should be shallow or deep, 20

7th. Best series of comparative experiments in the cultivation of corn, 20

8th. Benefits and products of guano, compared to costs; to be tested by not less than three different experiments, made under different circumstances, 20

9th. Benefits or profit of preserving and applying human excrements as manure, whether prepared for sale and distant transportation or otherwise, but the whole operation to be in Virginia, - - - 20

10th. Tide marsh mud, or swamp muck, or peaty soil (either kind to be accurately described and characterized) as manure, in compost with lime or other materials, or otherwise, - 20

11th. Value of charcoal as an aid to fertility, - - - 20

12th. Value of sulphate of barytes as a manure, especially for clover, - 20

13th. *Tobacco*.—Culture, cost and profit of cultivation, and comparative effects on production, from different distances of planting, modes of priming, topping, &c.—comprising at least three different experiments, - - 30

14th. Culture, cost and profit of cultivation, and comparative feeding value of rye, - - - 10

BRANCH II.—Essays or written Communications.—For each of the best five on any of the following subjects, a premium, as follows:

1st. On improving and enriching poor land—whether naturally poor or naturally rich, or good, and subsequently exhausted by severe cropping, \$30

2d. On draining, - - - 20

3d. On rotation of crops, - - - 10

4th. On the accumulation, preparation and application of stock yard and stable manure, - - - 20

5th. On the "green sand" or "gypseous earth" of lower Virginia as manure—and the facts, and causes of effect or non effect, - - - 20

6th. On the properties and value of the Southern pea (or "cornfield pea" of any variety,) and the culture thereof; whether for saving the peas ripened, or ploughing under the growth, green or dry, for manure, and as a preparation for wheat, or other grain crops, \$20

7th. On the comparative profits of planting and farming, and of the two combined—improvement of land being considered, - - - 20

BRANCH III.—*Best Farming in Virginia*—Having reference as much as may be to all the territory of the State. Honorary testimonials for the twelve best farms, which have been managed to greatest benefit and profit in reference to the following great objects of cultivation: improvement of soil-fertility or production; increase of farming capital—sufficient annual profits; and general arrangement and procedure tending to best secure profitable and enduring results. Greater superiority in one or more of these requisites may compensate for deficiency in others.

BRANCH IV.—For the best product averaged to the acre, of each of the following crops raised in 1853 on a *bona fide* farm and for an entire shift of the farm according to its usual or designed rotation—a premium of - - - \$20

- 1st. Best average product of Indian corn.
- 2d. " " wheat.
- 3d. " " clover.
- 4th. " " tobacco.

A premium for the best average product of each of the following crops, of \$10

- 5th. Oats.
- 6th. Peas (Southern, or cornfield, either among corn or separate,) in grain or in green manure.
- 7th. Sweet potatoes.
- 8th. Irish potatoes.
- 9th. Turnips.
- 10th. Carrots.
- 11th. Parsnips.
- 12th. Pumpkins.

For the largest yield on one acre of the following crops, each a premium of \$10

- 13th. Tobacco.
- 14th. Corn (not less than 100 bushels per acre.)
- 15th. Wheat (not less than 30 bushels per acre.)
- 16th. Hay (clover or grass, not less than 2 tons per acre.)

For the best varieties of the following crops, to be raised and samples exhibited

by the individual raising them, a premium of - - - \$5

- 17th. Corn.
- 18th. Wheat.
- 19th. Tobacco.
- 20th. Oats.
- 21st. Clover and grass seeds.
- 22d. Turnips.
- 23d. Parsnips.
- 24th. Carrots.
- 25th. Pumpkins.
- 26th. Peas.

BRANCH V.—*Live Stock Exhibited.*

HORSES.

- 1st. For the best thoroughbred stallion, - - - \$30
- 2d. For the second best thoroughbred stallion, - - - 15
- 3d. For the best thoroughbred mare, 15
- 4th. For 2d " " " 8

QUICK DRAUGHT AND SADDLE HORSES.

- 5th. For the best stallion for quick draught, - - - \$30
- 6th. For 2d best stallion for quick draught, - - - 15
- 7th. For best brood mare for quick draught, - - - 15
- 8th. For second best brood mare for quick draught, - - - 10
- 9th. For best stallion for the saddle, 30
- 10th. For 2d best " " " 15
- 11th. For best brood mare for the saddle, - - - 15
- 12th. For 2d best brood mare for the saddle, - - - 10
- 13th. For best pair matched horses, 15
- 14th. For 2d " " " 10
- 15th. For best saddle horse, mare or gelding, - - - 15
- 16th. For best pair draught horses, 15
- 17th. For the best team of draught horses, not less than four, - 20
- 18th. For best 3 year old colt or filly, 15
- 19th. For best 2 year old colt or filly, 10
- 20th. For best 1 year old colt or filly, 8

HEAVY DRAUGHT HORSES.

- 21st. For the best stallion for heavy draught, - - - 30
- 22d. For 2d best stallion for heavy draught, - - - 15
- 23d. For the best mare for heavy draught, - - - 15
- 24th. For 2d best mare for heavy draught, - - - 10

MULES AND JACKS.

- 25th. For the best jack, - 30
- 26th. For the 2d best jack, - 10
- 27th. For the best jennet, - 20
- 28th. For the 2d best jennet, - 10

29th. For the best pair of mules,	\$20
30th. For the best team of mules,	
not less than five,	30

CATTLE.

Short Horns or Durhams and Herefords, three years old and upward.

1st. For the best bull,	\$30
2d. For the 2d best bull,	15
3d. For the 3d best bull,	8
4th. For the best cow,	30
5th. For the 2d best cow,	15
6th. For the 3d best cow,	8

Short Horns or Durhams and Herefords, under three years old.

7th. For the best bull between two and three years old,	\$15
8th. For the 2d best bull between two and three years old,	8
9th. For the 3d best bull between two and three years old,	5
10th. For the best bull between one and two years old,	15
11th. For the 2d best bull between one and two years old,	8
12th. For the best heifer between two and three years old,	15
13th. For the 2d best heifer between two and three years old,	8
14th. For the best heifer between one and two years old,	15
15th. For the best heifer between one and two years old,	8

Devons and Alderneys, over three years old.

16th. For the best Devon bull three years old and upwards,	\$30
17th. For the 2d best Devon bull three years old and upwards,	15
18th. For the 3d best Devon bull three years old and upwards,	8
19th. For the best Devon cow three years old and upwards,	30
20th. For the 2d best Devon cow three years old and upwards,	15
21st. For the 3d best Devon cow three years old and upwards,	8
Alderneys same premiums as Devons.	

Devons and Alderneys under 3 years old.

22d. For the best Devon bull between two and three years old,	\$15
23d. For the 2d best Devon bull between two and three years old,	8
24th. For the 3d best Devon bull between two and three years old,	5
25th. For the best Devon bull between one and two years old,	15
26th. For the 2d best Devon bull between one and two years old,	8
27th. For the best Devon heifer between two and three years old,	15

28th. For the 2d best Devon heifer between two and three years old,	\$8
29th. For the best Devon heifer between one and two years old,	15
30th. For the 2d best Devon heifer between one and two years old,	8

Alderneys same premiums as Devons.

Ayrshires and Holsteins over 3 years old.

31st. For best Ayrshire bull three years old and upwards,	\$30
32d. For the 2d best Ayrshire bull three years old and upwards,	15
33d. For the 3d best Ayrshire bull three years old and upwards,	8
34th. For the best Ayrshire cow 3 years old and upwards,	30
35th. For the 2d best Ayrshire cow three years old and upwards,	15
36th. For the 3d best Ayrshire cow three years old and upwards,	8
Holsteins same premiums as Ayrshires.	

Ayrshires and Holsteins under 3 years old.

37th. For the best Ayrshire bull between two and three years old,	\$15
38th. For the 2d best Ayrshire bull between two and three years old,	8
39th. For the 3d best Ayrshire bull between two and three years old,	5
40th. For the best Ayrshire heifer between two and three years old,	15
41st. For 2d best Ayrshire heifer between two and three years old,	8
42d. For the best Ayrshire bull between one and two years old,	15
43d. For the 2d best Ayrshire bull between one and two years old,	8
44th. For the best Ayrshire heifer between one and two years old,	15
45th. For 2d best Ayrshire heifer between one and two years old,	8
Holsteins same premiums as Ayrshires.	

Natives or Grades.

46th. For best bull three years old and upwards,	\$30
47th. For 2d best bull three years old and upwards,	15
48th. For 3d best bull three years old and upwards,	8
49th. For best bull between two and three years old,	15
50th. For 2d best bull between two and three years old,	8
51st. For 3d best bull between two and three years old,	5
52d. For best bull between one and two years old,	15
53d. For 2d best bull between one and two years old,	8

15th. For best boar over 1 year old,	\$15	16th. For best pair Virginia Game,	\$2
16th. For 2d " " "	8	17th. For best pair black Spanish,	2
17th. For best boar 6 months old,	15	18th. For best pair Indian Mountain,	2
18th. For 2d " " "	8	19th. For best pair of Wild Indian	
19th. For best breeding sow over 2		Game,	2
years old,	15	20th. For best pair Sumatra Game,	2
20th. For 2d best breeding sow over		21st. For best pair Ostrich,	2
2 years old,	8	22d. For best pair of Bolton Greys,	2
21st. For best sow, not less than 6		23d. For best pair of Sea Bright	
months nor more than 18 months old,	15	Bantams,	2
22d. For 2d best sow, not less than		24th. For best pair Java Bantams,	2
6 months nor more than 18 months old,	8	25th. For best pair Great Malay,	2
23d. For best lot of pigs, not less		26th. For best pair Jersey Blues,	2
than 2 and under 5 months old,	15	27th. For best pair of common Dor-	
24th. For 2d best lot of pigs, not less		kings,	2
2 and under 5 months old,	8	28th. For the best pair of any other	
The small breed includes Neapolitan,		breed,	2
Suffolk, Chinese, and their grades.			

PREMIUM ANIMALS.

1st. For best bull of any breed on		29th. For best pair of common geese,	2
exhibition,	\$40	30th. For best pair of wild geese,	2
2d. For best cow of any breed on		31st. For best pair of China geese,	2
exhibition,	40	32d. For best pair of white Poland	
3d. For best stallion of any breed		ducks,	2
on exhibition,	40	33d. For best pair Muscovy ducks,	2
4th. For best brood mare of any		34th. For best pair common ducks,	2
breed on exhibition,	40	35th. For best pair common turkeys,	2
5th. For best buck of any breed on		36th. For best pair wild turkeys,	2
exhibition,	20	37th. For the greatest variety of	
6th. For best ewe of any breed on		poultry,	10
exhibition,	20		
7th. For best boar of any breed on			
exhibition,	20		
8th. For best breeding sow of any			
breed on exhibition,	20		
9th. For best pen of fat hogs, not			
less than twenty,	30		
10th. For best pen of fat hogs, not			
less than ten,	20		
11th. For best pen of fat hogs, not			
less than five,	10		

POULTRY—CHICKENS.

1st. For best pair of white Shang-			
haes,	2		
2d. For best pair of Cochín China,	2		
3d. For best pair of red Shanghaes,	2		
4th. For best pair of yellow "	2		
5th. For best pair of Imperial China,	2		
6th. For best pair of white Dorkings,	2		
7th. For best pair of red Chittagong,	2		
8th. For best pair of gray "	2		
9th. For best pair of black Poland,	2		
10th. For best pair of white Poland,	2		
11th. For best pair Silver Pheasant,	2		
12th. For best pair Golden "	2		
13th. For best pair spangled Ham-			
burg,	2		
14th. For best pair of white or red			
Game,	2		
15th. For best pair Bramah Pootra,	2		

TURKEYS, GEESE, DUCKS, &C.

29th. For best pair of common geese,	2
30th. For best pair of wild geese,	2
31st. For best pair of China geese,	2
32d. For best pair of white Poland	
ducks,	2
33d. For best pair Muscovy ducks,	2
34th. For best pair common ducks,	2
35th. For best pair common turkeys,	2
36th. For best pair wild turkeys,	2
37th. For the greatest variety of	
poultry,	10

BRANCH VI.

AGRICULTURAL IMPLEMENTS.

Class No. 1.

Ploughs, Cultivators and Rollers.

1st. For the best single horse plough,	\$8
2d. For the best shovel plough,	8
3d. For the best cultivator,	6
4th. For the best harrow,	8
5th. For the best subsoil plough,	5
6th. For the best gang plough,	5
7th. For the best hillside plough,	5
8th. For the best corn planter,	5
9th. For the best roller,	10

Class No. 2.

Drills and Broadcasting Machines, Wheat or Grass Rakes by Horse-Power, Cradles, Carts, Wagons, Wagon Gear, Cart Gear, Ox Yokes, &c.

1st. For best broadcasting and drill-	
ing machine for grain or grass seed,	\$30
2d. For best broadcasting machine	
for sowing grain,	30
3d. For best broadcasting machine	
for sowing lime,	30
4th. For the best corn planter or	
drill for depositing seed at regular	
distances,	10
5th. For best wheat drill,	30
6th. For best horse rake,	5
7th. For best set of wagon harness,	5
8th. For best ox yoke,	4

- 9th. For best grain cradle, - \$4
 10th. For best wagon for farm use, 10
 11th. For the best frame or body for
 hauling wheat in the sheaf, hay or
 straw, - - - 10
 12th. For best ox cart with body
 for hauling corn in the shucks, - 8
 13th. For best ox cart with body for
 hauling wheat in sheaf, hay or straw, 8
 14th. For best horse cart, - 6
 15th. For best set of cart gear, 4

Class No. 3.

- 1st. For best sweep horse-power, 30
 2d. For 2d best sweep horse-power, 10
 3d. For best railway horse-power, 30
 4th. For the best threshing machine
 without separating and cleaning ap-
 paratus, - - - 15
 5th. For best machine for threshing,
 separating and cleaning grain at one
 operation, - - - 20
 6th. For the best separator or straw
 carrier, - - - 5

Class No. 4.

- 1st. For best hay and straw cutter
 for horse-power, - - - 10
 2d. For best hay and straw cutter
 for hand-power, - - - 10
 3d. For best corn sheller for horse-
 power, - - - 10
 4th. For best grist mill for horse-
 power, - - - 10
 5th. For best grist mill for hand-
 power, - - - 10
 6th. For best saw mill for farm use
 for horse-power, - - - 10
 7th. For best corn and cob crusher, 8

Class No. 5.

- 1st. For best fanning mill, \$15 00
 2d. For best churn, - - - 5 00
 3d. For best hay fork, - - - 2 50
 4th. For best hay or straw knife
 for cutting down stalks, - - - 2 50
 5th. For best dung fork and hoe, 2 50
 6th. For best brier blade, - - - 2 50
 7th. For best stump machine, 10 00
 8th. For the best water ram in
 operation, - - - 10 00
 9th. For best draining tile, - - - 5 00
 10th. For best scoop or scraper, 5 00
 11th. For best hay press, - - - 30 00

AGRICULTURAL STEAM ENGINE.

- 1st. For the best steam, (portable)
 applicable to agricultural purposes
 generally, as a substitute for horse-
 power, - - - \$100
 2d. For the most extensive and val-
 uable collection of useful machines
 and implements exhibited and made

at any one factory, whether including
 subjects for other premiums or not, a
 premium of - - - \$25

PLOUGHING MATCH.

- 1st. For the best two-horse plough,
 as shown by work actually performed
 and the test of the dynamometer, 20
 2d. For the best 3 or 4 horse plough,
 as shown by work actually performed
 and the test of the dynamometer, 20
 3d. For the best ploughman with
 horses, - - - 10
 4th. For 2d best ploughman with
 horses, - - - 5
 5th. For best ploughman with steers, 10
 6th. For 2d best " " 5

WHEAT REAPER AND MOWER.

For the best wheat reaper and
 mower, to be tested in such manner
 and at such place as the Executive
 Committee shall designate, a premium
 of - - - 50

BRANCH VII.

FRUITS AND FRUIT TREES.

- 1st. For the best and largest variety
 of apples suitable for Southern raising,
 each labelled, - - - 10
 2d. For the best and largest variety
 of pears, - - - 8
 3d. For greatest number of choice
 varieties of different kinds of fruit, 10
 4th. For best and largest collection
 of apple trees, suitable for Southern
 raising, - - - 10
 5th. For best pear trees, - - - 10
 6th. For best peach trees, - - - 10
 7th. For best grape vines, - - - 5
 8th. For best strawberry vines, 3
 9th. For best raspberry plants, 3

VEGETABLES.

- 1st. For the largest and best assort-
 ment of table vegetables, - - - 10
 2d. For best dozen long blood beets, 3
 3d. For " head of cabbage, 3
 4th. For " carrots, - - - 3
 5th. For " egg plants, 3
 6th. For best peck of onions, 3
 7th. For best dozen parsnips, 3
 8th. For best bushel Irish potatoes, 3
 9th. For best bushel sweet potatoes, 3
 10th. For three finest pumpkins, 3
 11th. For best sample of beans, 3
 12th. For best sample garden peas, 3

BRANCH VIII.

DAIRY AND HONEY.

- 1st. For the best specimen of fresh
 butter, not less than 5 lbs. - 5
 2d. For 2d best specimen of fresh
 butter, not less than 5 lbs. - 3

3d. For best firkin or tub of salted butter, not less than six months old, \$6
 4th. For 2d best firkin or tub of salted butter, not less than six months old, 3
 5th. For best cheese, not less than 25 lbs. - - - 6
 6th. For best ten pounds of honey, 5
 The honey to be taken without destroying the bees, and the kind of hive used, and management of same to be stated by competitors. Also the methods of making and preserving the cheese and butter to be stated.

BACON HAMs.

1st. For the best ham, cured by exhibitor, - - - \$10
 2d. For 2d best ham, cured by exhibitor, - - - 5
 Manner of curing to be described by the competitors, and the hams exhibited to be cooked.

FLOWERS.

1st. For the largest and choicest variety of flowers, - - - \$10
 2d. For the 2d largest and choicest variety of flowers, - - - 5
 3d. For the best and greatest variety of dahlias, - - - 5
 4th. For the best and greatest variety of roses, - - - 5
 5th. For the best floral ornament, 5
 6th. For the best and largest variety of greenhouse plants, - 5

HOUSEHOLD MANUFACTURES.

1st. For the best quilt, - 5
 2d. For the 2d best quilt, - 4
 3d. For the best counterpane, 5
 4th. For 2d best counterpane, 4
 5th. For the best specimen of embroidery, - 3
 6th. For best specimen of worsted work, - 3
 7th. For the best hearth rug, 5
 8th. For the best pair home made blankets, - 5
 9th. For best home made carpet, 5
 10th. For best piece, not less than 7 yards, of home made negro shirting, 5
 11th. For best piece, not less than 10 yards, winter clothing for negroes, to be woven by hand, - 5
 12th. For best piece heavy woollen jeans, to be woven by hand, 5
 13th. For 2d best piece heavy woollen jeans, to be woven by hand, 3
 14th. For piece best linsey, not less than 7 yards, to be woven by hand, 5
 15th. For piece 2d best linsey, not less than 7 yards, woven by hand, 3
 16th. For best fine long yarn hose, 3

17th. For best home made bread, \$5
 18th. For best home made pound cake, - - - 3
 19th. For best home made sponge cake, - - - 3
 20th. For best varieties home made pickles, - - - 3
 21st. For best varieties home made preserves, - - - 3
 22d. For best varieties home made fruit jelly, - - - 3
 23d. For best sample of home made soap, the process of making to be described by the exhibitor, - 5

HOUSEHOLD IMPLEMENTS.

24th. For the best sewing machine, 15
 25th. For the best apple peeler, 3

BRANCH IX.—*Honorary testimonials* to each individual of Virginia who, previous to 1853 has discovered or introduced or brought into use, any principle, process or facility, or generally any improvement by which important value has been gained for the agricultural interests of Virginia.

BRANCH X.—Special premiums for any useful subjects not embraced under any of the foregoing heads.

1st. Discovery in Virginia of mineral phosphate of lime in sufficient quantity to be valuable for sale and distant transportation as manure, a premium of \$20
 If more than one claimant, the most valuable discovery to have the award.

BRANCH XI.—Premiums to be proposed of not less than \$20 value by any public spirited individual or association of individuals, who may thus desire to induce experiment or investigation on any particular subjects of inquiry which shall come under the general design of the Society. In any such case the premium shall be offered in and by the name of the individual donor, or association, but shall be awarded, as all other premiums, by the Executive Committee, acting under the general instructions of the Society. Offers under this branch may be made at any time, admitting of sufficient public notice thereof being given previous to the day of award.

Under this branch, and subject to the regulations above referred to, Edmund Ruffin, Esq. offers a complete set of the "Farmers' Register," ten volumes, well bound in calf, and to be lettered suitably to the destination, and to be denominated the RUFFIN PREMIUM, for the most valuable series of analyses, conducted by, or under the particular direction of any one chemist, of different kinds of marl of lower

Virginia, or of the accompanying beds of other earths supposed to contain manuring ingredients.

In deciding upon the relative superiority of claims of competitors for this premium, regard will be had to the number of analyses, the diversity and importance of the particular subjects, the accuracy of the methods used and described, the proper direction of investigation, and especially the probable utility and benefit of the results, in their application to agricultural practice and improvement of soils. It is understood that the award of this premium shall not invalidate or lessen any claim which the receiver might otherwise properly present upon some of the same grounds for any other premium offered by the Society on subjects of scientific investigation, useful discovery, or of communications or essays thereupon.

From the Richmond Enquirer.

ACTION OF GUANO ON TOBACCO:

A subscriber furnishes us with the following interesting letter, relative to the importance of guano in raising heavy crops of tobacco. The letter, at this season, particularly, cannot be otherwise than interesting to all growers of tobacco.

Cumberland, Feb. 8, 1853.

My Dear Sir,—Yours, of the 10th ult., did not reach me until last Saturday, in consequence of having been directed to Farmville, instead of Stony Point Mills; and I take the earliest opportunity to reply to it.

My experiment in growing such a heavy crop of tobacco last year, has attracted a great deal of attention, and I take pleasure in detailing it for the benefit of the planting interest of the State. The ground was pretty liberally dressed with home made manures, from my stables, farm-pens and pits, as I think ought always to be done, if we would grow tobacco profitably. When I was going to bed the land for hilling, or rubbing down, which I prefer, I sowed on each acre the following mixture: 2 bushels sifted Peruvian guano, weighing, I judge, about one hundred pounds, intimately mixed with one bushel ground alum salt. I then mixed 2½ bushels Mexican guano, weighing, I suppose, one hundred and sixty or one hundred and seventy pounds, and 1½ bushels of Kettlewell's

mixture of potash and plaster; or about one hundred and sixty pounds; and shovelled them all well together, and sowed the mixture broadcast. The cost of the whole was about \$6 25 per acre. The crop that was planted in good time—I was scarce of plants, and the seasons very difficult—I am sure, gave me two thousand pounds per acre. The tobacco was topped from eighteen to twenty-five leaves, ripened remarkably well to the top leaf, without firing. The tobacco was cultivated for the manufacturers, and is of very fine quality, and remarkably sweet.

My reasons for this mode of cultivation are few and simple. Our old lands in this region, and, I doubt not generally in middle Virginia, are more deficient in phosphates and potash than any other of the mineral manures; and the tobacco plant must have these elements in order to ripen it well. The Peruvian guano has but a small part of its value in phosphates—only about one-sixth, and five-sixths of its money value, or near forty dollars to the ton, in ammonia, which powerfully stimulates the growth of tobacco, without causing it to ripen, or without giving it the healthy growth which will secure it against firing. The Mexican guano is the richest that has been brought to the country in phosphates, containing 57 to 60 per cent. of ammonia; consequently about five-sixths of its money value is in the phosphates, and about one-sixth in ammonia. This suggested the idea of mixing the two. The salt was put with the Peruvian to fix the ammonia, and to furnish the muriates and the soda. But the tobacco plant specially needs potash, especially in its ripening process, the outer coat of the stalk and the stems being formed principally of silicate of potash. Thus, you see, at a glance, what I aimed to accomplish by my mixture.

The success was beyond my expectations. It was the heaviest crop of tobacco I ever saw, and so said every one who saw it.

The Mexican guano can be had at Baltimore at \$25 per ton, of 2240 lbs. Sterling & Ahrens deal in it. The potash and plaster, Mr. Kettlewell of Baltimore, prepares, and sells at \$2 50 per barrel, of about 320 pounds.

I lost, I may say, no tobacco by fire, while every one of my neighbors had to cut their crops for fire.

With high regard,

Yours, very truly,

J. S. ARMISTEAD.

COLLARS AND BACK BANDS.

Select a good piece of cotton bed-tick, cut strips ten inches wide and of sufficient length—double this strip lengthwise and sew the edges together—turn up and sew the ends loop fashion for the traces to run through, and the back band is finished.

Rip up an old leathern collar, wet it and beat the leather out flat; cut from this a pattern in brown paper, then cut out the bed-tick by the paper pattern—sew up the work with strong double thread; fill the case thus made with clean sound wheat chaff, well packed in with a stick—join the upper ends of the collar by means of a bit of sheep skin, and you have as good a collar as can be bought for \$1 25. Try it.

PAYMENTS TO THE SOUTHERN PLANTER,

From 15th March to 25th April, 1853.

All persons who have made payments early enough to be entered, and whose names do not appear in the following receipt list, are requested to give immediate notice of the omission, in order that the correction may be made in the next issue:

Joseph C. Cabell to January 1854	\$1 00	John D. Craig to March 1854	\$1 00
Samuel Haldeman to March 1854	1 00	James A. Patterson to March 1854	1 00
Samuel Watkins to March 1854	1 00	S. S. Gresham to March 1854	1 00
A. Cheatham, Jr. to July 1853	1 00	Dr. R. C. Mason to March 1854	1 00
M'Kewn Johnstone to January 1853	1 00	Rd. W. Barton to March 1854	1 00
Col. E. Rowe to July 1854	2 00	Martin M'Ferran to March 1854	1 00
Thomas Young to January 1854	1 00	Charles M. White to March 1854	1 00
Robert Hill to January 1854	1 00	F. H. Mays to January 1855	2 00
Capt. N. L. Paleske to January 1854	1 00	Dr. C. W. Wormley to January 1854	1 00
Dr. H. Harris to January 1854	1 00	Shanklin M'Clintick to January 1854	3 00
Edward J. Burton to January 1854	1 00	P. T. Lomax to March 1854	1 00
William Gongh to January 1854	1 00	H. Bynum to January 1854	1 00
Col. R. F. Parker to January 1854	1 00	Dr. J. B. Harvie to January 1854	2 00
Dr. A. S. Hall to January 1854	1 00	Wm. E. Meade to March 1854	1 00
Dr. George C. Scott to January 1854	1 00	William Brittingham to January 1854	1 00
Wm. O. Fontaine to January 1854	1 00	Gilderooy Yeates to March 1854	1 00
Dr. W. A. Christian to January 1854	1 00	James Hill to January 1854	1 00
A. M. Hobson to January 1854	1 00	Smith Petty to January 1853	1 00
John D. Hobson to January 1854	1 00	David Fry to January 1854	1 00
Winston Sutherland to July 1851	2 00	Balaam Osborne to January 1854	1 00
Dr. R. E. Haskins to January 1854	1 00	John Scott to January 1854	1 00
Josiah Smith to January 1854	1 00	Ananias Hancock to January 1854	1 00
Beverley Randolph to January 1854	1 00	Wm. H. Barksdale to July 1853	1 00
Randolph Harrison to January 1854	1 00	Joseph Hightower to January 1854	2 00
Wm. H. Brown to January 1854	2 00	H. H. Ferguson to January 1854	2 00
T. B. Hamlin to January 1854	1 00	James Burton to January 1854	2 00
H. M. Nelson to January 1855	1 00	Moses D. Echols to January 1854	1 00
John S. Henshaw to January 1855	2 00	H. M. Kirby to January 1854	1 00
Col. George W. Harris to July 1853	1 00	Bird Dodson to January 1854	1 00
Col. J. J. Bowcock to July 1853	1 00	Stephen C. Townes to January 1854	1 00
William Patterson to March 1854	1 00	T. O. Soyars to January 1854	1 00
		Isaac T. Oliver to January 1854	1 00
		Thomas Chaney to January 1854	1 00
		William Wilson to January 1854	1 00
		Joel H. Tanner to January 1854	1 00
		Dr. T. J. Prewell to September 1853	1 00
		Rev. B. Devany to March 1854	1 00
		Dr. Joseph Watkins to January 1854	1 00
		H. A. Sydnor to January 1854	1 00
		William Logan to January 1854	2 00
		William Turnbull to January 1854	1 00
		William Webb to April 1854	1 00
		Edw. Friend to April 1854	1 00
		T. W. Lowry to January 1854	1 00
		Milton Garnett to January 1854	1 00
		Daniel M. Tucker to April 1854	1 00
		Thomas L. Pleasants to January 1855	1 00
		W. Sutherland to July 1854	2 00
		Thomas Perkinson to April 1854	1 00
		R. A. Weaver to July 1854	2 00
		Thomas A. Fox to January 1853	2 00
		Dr. Carr Bowers to January 1854	1 00
		Dr. Thomas Meaux to January 1854	1 00
		Michal P. Moyers to April 1854	1 00
		Wm. Pope Dabney to July 1853	1 00
		B. T. Winston to January 1854	2 00
		W. P. Shepherd to January 1854	1 00
		James S. Bristow to January 1852	2 00
		T. W. Fauntleroy to January 1852	1 00
		Capt. E. R. Pullen to January 1852	2 00
		R. C. Belfeld to January 1853	2 00
		Dr. W. A. Brockenbrough to Jan. 1851	4 00
		J. C. Mitchell to July 1849	2 00
		W. M. N. Crabb to January 1853	1 00
		Estate of J. A. Palmer (in full)	3 50
		Samuel Gresham to January 1852	1 00
		Thad. Forrester (in full)	50

Eppa. N. Dunaway (in full)	\$6 00	John E. Schley to October 1853	\$1 00
James P. Flippo to January 1852	1 00	Tully W. Parker to April 1854	1 00
John A. Chappell to April 1854	1 00	Capt. J. L. Davis to January 1854	1 00
Dr. Thomas W. Neal to January 1854	1 00	Dr. W. T. Banks to January 1854	1 00
Thomas O. Dearen to January 1854	1 00	R. A. Banks to January 1854	1 00
Joshua Cannon to January 1854	1 00	Belfield Cave to January 1854	1 00
Samuel T. Miller to January 1854	1 00	Peter Quarles to January 1854	1 00
Thomas R. Marshall to January 1852	5 00	Luke J. Palmer to October 1853	1 00
Thomas G. Burks to January 1854	1 00	Pascal Hicks to April 1854	1 00
Joseph Gilmore to January 1854	1 00	Ed. T. Morris to April 1854	1 00
James L. Stringfellow to January 1854	1 00	Walker B. Blanton to January 1854	1 00
Russel J. Dickinson to April 1854	1 00	Wm. R. Hackett to January 1854	1 00
Charles B. Bullard to January 1854	3 00	Dr. L. Edwards to January 1854	1 00
Andrew Hart to January 1854	1 00	Wm. H. Davis to January 1854	1 00
Henry Duerson to January 1854	1 00	E. Brown to January 1854	1 00
John Lackland to January 1854	1 00	Capt. F. M. Wiley to April 1854	1 00
John A. Britton to January 1854	1 00	L. Brockenbrough to April 1854	1 00
Richard L. Rudasille to January 1854	1 00	Francis E. Rives to April 1854	1 00
John Patterson to August 1853	1 00	Alex. H. Raney to April 1854	1 00
Thomas G. Tinsley to January 1854	1 00	Joseph Hay to January 1852	2 00
Powhatan Jones to September 1853	1 00	A. Michaels to January 1854	1 00
Thomas H. Sharp to September 1853	1 00	A. Phillips to January 1854	1 00
Elsey Fogg to January 1854	1 00	E. W. Poindexter to January 1852	1 00
Bev. Douglass to July 1853	3 00	W. C. Latane to January 1854	1 00
B. F. Garrett to April 1854	1 00	Col. R. Rowzee to January 1854	1 00
Jas. B. Newman to September 1853	1 00	John Tarrant to January 1854	1 00
A. W. Womack to January 1854	1 00	Ro. S. Luck to April 1854	1 00
Joseph T. Priddy to April 1854	2 00	L. W. Allen to January 1854	1 00
Thomas Arvin to January 1854	1 00	R. G. Bibb to January 1854	1 00
John Hughes to January 1854	1 00	Dr. Willis Lewis to July 1853	2 00
J. C. Rowe to April 1854	1 00	Beverly E. West to April 1854	1 00
James A. Snell to July 1853	1 00	David Murray to January 1854	1 00
H. A. Kite to January 1853	1 00	W. P. Harrison to January 1854	1 00
James C. Cook to April 1854	1 00	J. E. Murray to January 1853	1 00
Wm. L. Pannill to January 1854	1 00	E. Murray to January 1853	1 00
A. W. Nolting to January 1854	1 00	T. N. Murray to January 1853	1 00
George W. Carter to January 1854	1 00	Wm. N. Holstead to April 1854	1 00
John R. Gilliam to September 1853	1 00	Wm. N. Nicholson to April 1854	1 00
John A. Ratliff to January 1854	1 00	John T. Whitehurst to January 1854	1 00
James H. Cox to January 1854	6 00	John B. McCloud to January 1854	1 00
B. T. Williamson to April 1854	1 00	Dr. Albert G. Read to April 1854	1 00
R. H. Field to January 1854	1 00	Wm. W. Cosby to April 1854	1 00
W. S. Dulaney to January 1853	1 00	Archer Wren to April 1854	1 00
William Warren to January 1853	1 00	N. B. Richardson to January 1854	1 00
A. P. Rowe to January 1854	1 00	Ro. Scott to January 1854	1 00
James McDowell to January 1854	1 00	C. L. Dicken to January 1854	1 00
Dr. J. R. Taylor to January 1854	1 00	Dr. James L. Jones to January 1854	1 00
John R. Taylor to January 1854	1 00	W. R. C. Douglas to January 1853	1 00
Henry Taylor to January 1854	1 00	Dr. W. D. McGuire to April 1854	1 00
James W. Moorman to April 1854	1 00	William Eddins to April 1854	1 00
John S. Groseclore to April 1854	1 00	Dr. William Meredith to July 1854	1 00
Dr. W. J. Hawkins to January 1851	2 00	R. E. G. Adams to May 1854	1 00
Dr. B. Dennis to January 1854	1 00	R. Blackwell to April 1854	1 00
Dr. Wm. Gwathmey to January 1854	1 00	Fabian Armistead to January 1854	10 00
Hervey Handly to April 1854	1 00	Ro. Gilliam to January 1854	
William Webb to January 1854	2 00	Col. John Peterson to January 1854	
Capt. Thos. E. Haskins to April 1854	1 00	Dr. R. Eppes to January 1854	
John Goodwin to January 1854	3 00	J. H. Batte to January 1854	
Edward G. Sydnor to March 1854	1 00	Josiah M. Jordan to January 1854	
Wm. D. Haden to September 1853	1 00	Charles Friend to January 1854	
Dr. John A. Michie to July 1853	1 00	Cor. Russel to January 1854	
J. E. Smith to January 1854	1 00	William F. Bowden to January 1854	
K. S. Nelson to January 1854	1 00	Jesse H. Heath to June 1854	
George Carr to January 1854	1 00	John W. Eppes to January 1854	
Abalom Rowe to March 1854	1 00	P. P. Batte to January 1854	
T. K. Miller to July 1853	1 00	Wm. H. Talbot to April 1854	1 00
John S. Hightower to September 1853	1 00	Richard Walke to April 1854	1 00

AGENCY.

I AM willing to assist gentlemen in purchasing and selling farms, stock, and poultry of every description; to attend to receiving and properly forwarding animals; also, to procure suitable overseers and laboring men for farmers and planters: all of which will be attended to for a small commission. My position as Marshal of the Maryland State Agricultural Society gives me advantages of knowing many men, and most good stock, which with my general knowledge of land induces me to extend the agency to land, men and stock. I have some fine farms to sell in Talbot county, and several in Baltimore county: subject to my order a number of prize animals, saddle and other stallions, and a few fine mares; Durhams, Devons, Alderney, and Ayrshire; pure long woolled sheep from the best flock in the United States; Chester and Suffolk pigs; Shanghai and other new and large fowls; also, two fine Jacks. All letters post paid, will receive prompt attention.

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C. B. Calvert & C. Hill, Washington City; G. W. Hughs, West River, Md.; J. N. Goldsborough, Easton, Md.; R. McHenry, Emerton, Md.; S. G. Fisher, Philada., Pa.; C. P. Holcomb, Wilmington, Del.; Col. J. W. Ware, Berryville, Va.; I. G. Wright, Wilmington, N. Carolina; J. W. H. Brownfield, Charleston, S. C.; McGill Robinson, Louisville, Ky.; Wm. A. Lake, Vicksburg, Miss.; Dr. Henry M. Robinson, Huntsville, Ala.; T. Hayward and Maj. R. Hayward, Tallahassee, Florida.

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RUMFORD ACADEMY, KING WILLIAM, VA.—This school is about two miles from Sharon Church, on the stage road between Richmond and Tappahannock. So healthful is the location, that but few cases of serious sickness have occurred in the school since its establishment in 1804. No expense is spared in providing for the physical comforts of the pupils; treated in every respect as young gentlemen, they are required to conduct themselves as such.

The subscriber, who has been engaged eight years in guiding and instructing youth, will be aided by competent assistants.

The usual English Course, including Chemistry and Philosophy, an extensive course of Mathematics, and the Latin, Greek and French Languages will be taught. A recess of one week will be given at Easter.

TERMS.—For board and tuition, with every necessary except lights and stationery, from 15th of January to 1st of July, \$84; payable one-half 1st of May, the other half 1st of July.

JOHN H. PITTS,

Aylett's P. O. King William.

ja—tf

THOROUGH-BRED DEVONS for Sale by W. P. & C. S. WAINWRIGHT.

BULLS.—1. *Uncas*:—calved March 19th, 1851.—1st prize as yearling at American Institute show in October, 1852. Sire, "Megunticook;" grandsire, "Prince Albert" (102); dam, "Nonpareille," by "Lord Lynedock."

2. *Red-jacket*:—calved May 5th, 1852.—1st prize as calf at American Institute show 1852. Sire, "Megunticook;" dam, "Meadow Lily," by "Baronet" (6); g. d. "Helena."

3. *Oseola*:—calved Sept. 11th, 1852.—Sire, "May-boy" (71); grandsire, "Duke of York" (37); dam, "Moss-rose," by "Duke of York," (37); g. d. "Nonpareille."

4. *Dacolah*:—calved October 29th, 1852.—Sire, "May-boy," (71); dam, "Red-bud," by "Megunticook;" g. dam, "Nonpareille," by "Lord Lynedock."

HEIFERS.—1. *Rose*:—calved Oct'r, 1849; bred by Mr. R. C. Gapper, Canada West.—Sire, "Major;" g. sire, "Billy;" dam, "Cherry," by "Billy;" g. d. "Beauty." In calf by "May-boy."

2. *Gazelle*:—calved October, 1850; bred by Mr. R. C. Gapper, Canada West.—Sire, "Rob Roy;" grandsire, "Santa Anna;" dam, "Cherry." In calf by "May-boy," (71.)

These pedigrees run back to the best herds in England:—"Megunticook," "May-boy," and "Nonpareille," having been imported from the stock of George Turner, Esq., and "Helena," from that of James Quarterly, Esq., by ourselves; while "Billy" and "Beauty" were imported by Mr. Gapper from that of Mr. James Davy.

Animals delivered free of expense in New York, or Albany. Our stock may be seen at all times on our farm, three hours from New York by Hudson River R. R.

The numbers in brackets refer to the English Herd Book.

Rhinebeck, Dutchess Co., N. Y. mar—3t

PURE BRED MALE STOCK

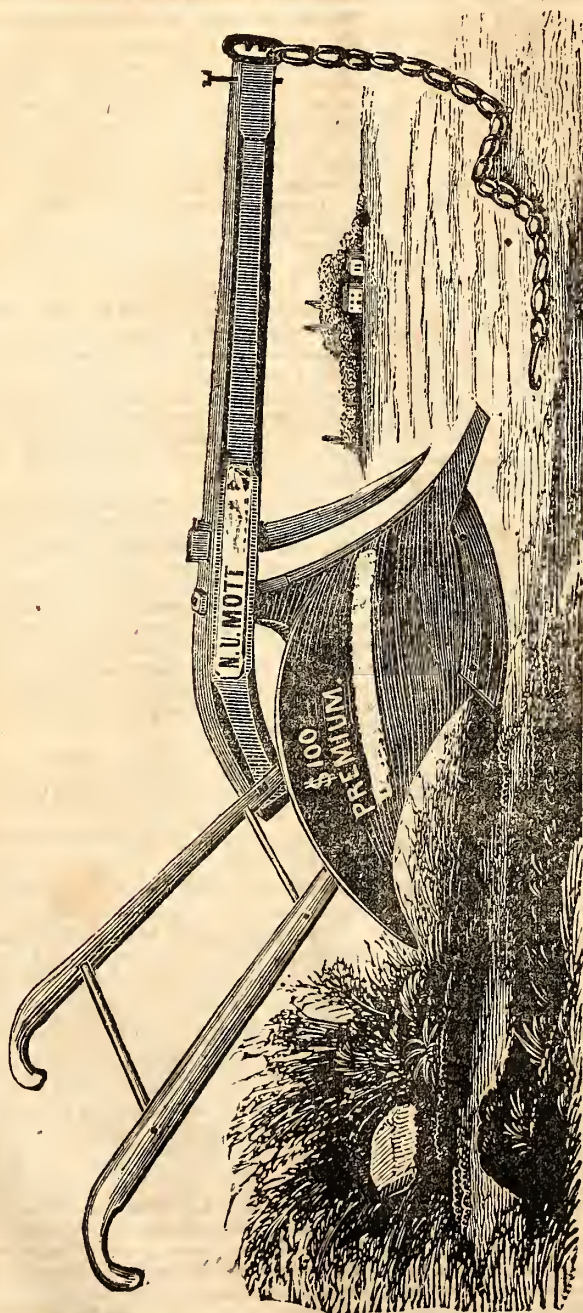
At Private Sale at Mount Fordham, Westchester County, 11 miles from City Hall, New York.

I WILL sell and let from 10 to 12 Short Horned Bulls and Bull Calves, 4 Devon Bulls and Bull Calves, and from 12 to 15 Southdown Rams. The annual sale by auction will be omitted this year, as I wish to reserve all the females, having recently purchased another farm to enable me to increase my breeding establishment. My Hog stock, including all the spring litters, are engaged. Catalogues, with full description and pedigrees of above Bulls and Southdown Rams, with the prices attached, can be obtained by the 15th April inst., from the subscriber or at any of the principal Agricultural Stores, or from the Editors of the principal Agricultural Journals.

L. G. MORRIS.

April 1, 1853—3t

FARMERS, PLANTERS AND GARDENERS, PLEASE TAKE NOTICE.



SOUTHERN AGRICULTURAL IMPLEMENT MANUFACTORY AND SEED STORE, No. 36 MAIN ST. RICHMOND, Va.

N. U. MOTT, WILLIAM LEWIS and AUGUSTINE CRUMP have entered into copartnership for the purpose of manufacturing all kinds of the most approved Agricultural Implements suitable for the South and West, and have purchased of Mr. J. S. WALTHALL his stock, and taken his old stand, where they will be happy to serve the patrons of the old concern and the public in general, and take this method of calling the attention of all interested in tilling the soil to their extensive stock of superior agricultural implements. They will manufacture and keep for sale Ploughs and Plough Castings of all kinds and of the best materials; also Mott's Horse-Powers and Threshing Machines, with or without Cleaner and Separator. These Machines have taken the preference wherever introduced, and are recommended by some of the best farmers in Virginia, Maryland and Pennsylvania, as the best and most durable and least complicated of any yet introduced—are of easy draught and easily kept in order by the farmer at small cost. This Machine must become the principal, if not the only Machine in use, as it will thresh, clean and bag up at

one operation—being simple in construction, economical to the farmer, and will thresh more in a given length of time than any Machine in use. This Machine took the premium over some five or six machines at the Maryland State Fair, in October, 1852, by acclamation. We manufacture them from 2 horse-power up to 12 horse-power. We also manufacture Ploughs, Cultivators, Harrows, Grain Cradles, Wheat Drills, Corn and Cob Crushers, Corn Shellers, Straw Cutters of different kinds, among which are Smith's Virginia Patent, being cheap and simple in its construction, Revolving Horse Rakes, Premium Wheat Fans. We will also keep for sale Reapers, Mowing Machines, and all kinds of useful implements, such as are used by Farmers, Planters and Gardeners. We would call particular attention to the Wiley or Mott Premium Double Pointed Cap Plough, of composition metal. One of these Ploughs will last as long as three or four of any other kind now in use, and the metal will stand rocky or stumpy land as well as steel wrought shares—the shares only costing from 25 to 45 cents each—will plough from 20 to 30 acres each—the cap fitting right in the wear of the mould-board, the cap costing only from 25 to 45 cents. This Plough can be kept in order by the farmer or any of the hands, from five to six years. With this Plough the farmer is his own blacksmith. The Ploughs all warranted, and also warranted to put the ground in better order than any Plough now in use. Also Wrought Share Ploughs, both Right and Left; among which are the Improved McCormick's, with Cast Landside and Heels; Livingston County Plough, of all sizes; Subsoil Ploughs of the best patterns.

N. U. MOTT being a practical and an experienced workman for fifteen years in the different branches of the business of manufacturing of implements, we feel safe in saying that articles purchased of us will prove of superior workmanship. Call and examine for yourselves, when we will be happy to exhibit our goods.

MOTT, LEWIS & Co.

Sign of the Plough, 36 Main Street, 3 doors below the City Hotel.
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APOTHECARY AND DRUGGIST,

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DEALER in English, Mediterranean, India and all Foreign and Domestic Drugs and Medicines; also, Paints, Oils, Varnish, Dye-Stuffs, Window Glass, Putty, &c. For sale on the most accommodating terms.

Orders from Country Merchants and Physicians thankfully received and promptly attended to
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NEW PLASTER AND BONE MILL.

THE subscriber offers for sale fine Ground and Calcined Plaster, both of the best and purest quality; he has also a Bone Mill attached, and intends to keep a supply of Ground Bones, fine and pure. Farmers and others are invited to call and examine for themselves. His prices shall be as low as the same quality articles can be bought for, North or South. The highest cash price will be paid for dry bones, delivered at his Mill adjoining the Paper Mill.

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R. R. DUVAL.

DR. VALENTINE'S RECIPE FOR MAKING ARTIFICIAL GUANO.

No. 1. Dry Peat,*	-	-	20 bushels
No. 2. Wood Ashes,	-	-	3 bushels
No. 3. Fine Bone Dust,	-	-	3 bushels
No. 4. Calcined Plaster,	-	-	3 bushels
No. 5. Nitrate of Soda,	-	-	40 pounds
No. 6. Sal Ammoniac,	-	-	22 pounds
No. 7. Carb Ammonia,	-	-	11 pounds
No. 8. Sulph: Sodæ,	-	-	20 pounds
No. 9. Sulph: Magnesia,	-	-	10 pounds
" 10. Common Salt,	-	-	10 pounds

* If peat cannot be obtained, use garden mould, or clean virgin soil instead.

DIRECTIONS FOR MIXING.—Mix Nos. 1, 2, 3, together—mix Nos. 5, 6, 7, 8, 9, 10, in four or five pails of water, or enough to dissolve the ingredients. When dissolved, add the liquid to the mixture, (1, 2, 3,) and mix as in making mortar. When thoroughly mixed, add No. 4, (the calcined plaster,) which will absorb the liquid and bring the whole to a dry state. Mix under cover in a dry place—pack so as to exclude air—observe the proportions in making small or large quantities. The above receipt will make one ton, which will manure seven and a half acres of land.

Having furnished the above to a number of farmers who have tested its qualities—many thinking it equal to natural guano—the subscribers have made arrangements to furnish any quantity during this season, and will sell the ingredients exclusive of the Peat, Wood Ashes, Plaster and Salt, (articles on every farm,) at the low price of \$10 per ton. One sugar hogshead will hold ingredients enough for five tons. All orders will be carefully and promptly executed, and sent to any part of the State.

R. R. DUVAL & BRO.

Chemists and Druggists, Bank Square, Richmond, Va.
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Constantly on hand, a full supply of standard AGRICULTURAL WORKS.

NOTICE.

To those who have recently subscribed for the **PLANTER**, and requested us to send the back numbers from January, 1853, we are sorry to say, it is out of our power to do so. The back numbers (January, February and March) are entirely exhausted.

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AGRICULTURAL WAREHOUSE.

THE subscriber continues to manufacture Agricultural Machines, viz. Horse Powers, Threshers, Fan Mills, Hay Rakes, Hunt's Patent Wheat Drill, Hay Presses, Straw Cutters, Corn Shellers, Hill Side and Subsoil Ploughs, Corn and Cob Crushers, Cultivators, Harrows, &c.—all of which will be made in the best manner and on the most approved patterns. My Horse Power and Thresher with self-oiling box have been tested three seasons, and uniformly pronounced the best in use. Machines repaired, Castings in Iron and Brass furnished at short notice.

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THE subscriber having removed to the large Foundry, just erected by him and fitted out with machinery of the latest and most approved style, is, in addition to the manufacture of Tobacco Flattening Mills, prepared to receive orders for Stationary Steam Engines, Saw and Grist Mills, Agricultural Machines, Tobacco Presses of every description, and all kinds of Iron and Brass Castings. He pledges himself to execute faithfully, and with dispatch, all work entrusted to him, and respectfully solicits a call from his friends and the public generally.

The highest cash prices paid for old cast iron, brass and copper.

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Hind's Farrier—\$1.

Also, a complete assortment of Books on Rural Architecture and AGRICULTURE.
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